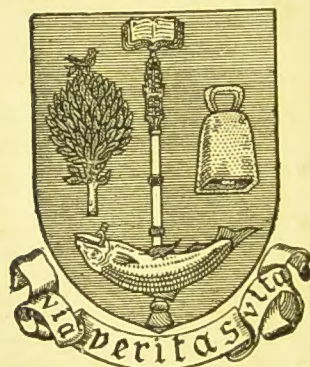




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EDINBURGH

P R A C T I C E

OF

PHYSIC, SURGERY, AND MIDWIFERY.

March 24th 1834

MINNEAPOLIS
PRACTICE
OF
PHYSIC, SURGERY, AND MEDICINE

THE
EDINBURGH PRACTICE

OF
PHYSIC, SURGERY,
AND
MIDWIFERY;

PRECEDED BY
AN ABSTRACT OF THE THEORY OF MEDICINE,

AND
THE NOSOLOGY OF DR. CULLEN

AND INCLUDING
UPWARDS OF SIX HUNDRED AUTHENTIC FORMULÆ,
FROM THE BOOKS OF ST. BARTHOLOMEW'S, ST. GEORGE'S,
ST. THOMAS'S, GUY'S, AND OTHER HOSPITALS IN
LONDON, AND FROM THE LECTURES AND
WRITINGS OF THE MOST EMINENT
PUBLIC TEACHERS.

With Twenty Quarto Plates.

A NEW EDITION, IN FIVE VOLUMES.

VOL. I.
MEDICINE.

July 2^d 1824

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P R E F A C E.

“AS experience without theory,” says an intelligent medical writer, “will never make a physician, any more than any other art can be acquired without an acquaintance with the rules on which it is founded; and as he that is guided merely by appearances, without being able to reason about their minutest differences, will never see an error till it is past recovery; it will be found by those who impartially examine this question, that true satisfaction is no more to be found in mere experience than in mere hypothesis. If there be any thing of *science* in medicine it is conducted by demonstration, because conversant with objects cognizable only by the evidence of sense; but without this it is chance and confusion, and the enthusiast and the empiric are upon an equal footing. Not that we can pretend to certainty in all instances of practice, because there are more data required for that than the nature of things can admit of; but the theorist will come at more of those data than any other, and in every step he takes will be able to *compute all the chances that are risked on either side of a disputable case*; whereas the empiric and experimenter are *altogether* in uncer-

tainty, having *no rules* to make even observation itself of real use."

That mere directions *how to treat a disease*, unaccompanied with any precise law by which that disease is governed, or any detail of the variations to which it is subject, are not merely useless but even pernicious, may be easily proved by the testimony of medical men, who have trusted to the fallacious guidance of those publications which pretend to teach the *practice* of the different branches of the medical art, without paying any material regard to *theory*. It is a conviction of this sort that has induced the Editor of the following sheets to avail himself of a northern work already, and deservedly, popular; and, in its present detached form, to place it within the reach of every medical student and practitioner, divested of many accidental errors, and enriched by materials drawn from the first sources of medical, chirurgical, and obstetrical information in South Britain.

Thus, to the excellent compilations of Dr. MONRO and Mr. FYFFE have been added *every successive improvement* in medicine and surgery; nor has less attention been paid to the necessary additions to the treatise on midwifery, originally the work of an eminent teacher at Edinburgh. Above all it has been the Editor's endeavour to bring together in these volumes a body of CASES, truly valuable and authentic; and greatly to augment the FORMULÆ, which stamped the former edition with a marked degree of superiority over other publications of the kind: of these it may no less truly be said, that "none are the

rague productions of obscure *anonymous pharmacologists*, but stamped with the strongest possible characters of authenticity."

A practice of medicine formed upon the classification of Dr. Cullen necessarily led to that important appendage the *NOSOLOGY*; a circumstance which the reader will not regret, since it not only affords him a general systematic view of all the diseases to which the human body is liable, but serves as a kind of nomenclator or index.

The union of the different branches of medical practice in the present work, may appear to demand some apology; but when it is considered that the bulk of the profession (taking the profession collectively) are in the habit of practising *all at the same time*; that this is universally the case in the *ARMY* and *NAVY*; that no medical man should be *ignorant* of that branch which he does *not* practise; and lastly, that the peculiar nature of some diseases renders it impossible to decide which of the branches it properly belongs to; we apprehend little can be objected to this part of our scheme.

The *PLATES*, the number of which has been considerably augmented, it is hoped, will be found eminently useful, particularly to the young practitioner; and the *TABLES* and copious *INDEXES* capable of facilitating the reader's pursuits, in a manner that will ensure his decided approbation of the undertaking.

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INTRODUCTION.

MEDICINE is the art of preventing, curing, or alleviating those diseases to which the human species are subject.

The fabulous history of the ancients derives this art immediately from their gods; and, even among the moderns, some are of opinion that it may justly be considered as of divine revelation. But, without adopting any supposition of which no probable evidence can be given, we may conclude that mankind were naturally led to it from casual observations on the diseases to which they found themselves subjected; and that therefore, in one sense at least, it is as ancient as the human race. But at what period it began to be practised as an art, by particular individuals following it as a profession, is not known. The most ancient physicians we read of were those who embalmed the patriarch Jacob by order of his son Joseph. The sacred writer styles these physicians *servants* to Joseph: whence we may be assured that they were not *priests*, as the first physicians are generally supposed to have been; for in that age we know the Egyptian priests were in such high favour, that they retained their liberty, when, through a public calamity, all the rest of the people were made slaves to the prince.

It is not probable, therefore, that, among the Egyptians, religion and medicine were originally conjoined; and if we suppose the Jews not to have invented the art, but received it from some other nation, it is as little probable that the priests of that nation were their physicians, as those of Egypt.

That the Jewish physicians were absolutely distinct from their priests, is very certain. Yet as the Jews resided for such a long time in Egypt, it is probable they would retain many of the Egyptian customs, from which it would be very difficult to free them. We read, however, that when king Asa was diseased in his feet, "he sought not to the Lord, but to the physicians." Hence we may conclude, that among the Jews, the medicinal art was looked upon as a mere human invention; and it was thought that the Deity never cured diseases by making people acquainted with the virtues of this or that herb, but only by his miraculous power. That the same opinion prevailed among the heathens who were neighbours to the Jews, is also probable from what we read of Ahaziah king of Judah, who having sent messengers to enquire of

Baal-zebub, god of Ekron, concerning his disease, he did not desire any remedy from him or his priests, but simply to know whether he should recover or not:

What seems most probable on this subject therefore is, that religion and medicine came to be mixed together only in consequence of that degeneracy into ignorance and superstition which took place among all nations. The Egyptians, we know, came at last to be sunk in the most ridiculous and absurd superstition; and then, indeed, it is not wonderful to find their priests commencing physicians, and mingling charms, incantations, &c. with their remedies. That this was the case, though long after the days of Joseph, we are very certain; and indeed it seems as natural for ignorance and barbarism to combine religion with physic, as it is for a civilized and enlightened people to keep them separate. Hence we see, that, among all modern barbarians, their priests or conjurors are their only physicians.

We are so little acquainted with the state of physic among the Egyptians, that it is needless to say much concerning them. They attributed the invention of medicine, as they did also that of many other arts, to Thoth, the *Hermes* or *Mercury* of the Greeks. He is said to have written many things in hieroglyphic characters upon certain pillars, in order to perpetuate his knowledge, and render it useful to others. These were transcribed by Agathodemon, or the second Mercury, the father of Tat, who is said to have composed books of them, that were kept in the most sacred places of the Egyptian temples. The existence of such a person, however, is very dubious, and many of the books ascribed to him were accounted forgeries as long ago as the days of Galen. There is also great reason to suspect, that those books were written many ages after Hermes, and when physic had made considerable advances. Many of the books attributed to him are trifling and ridiculous; and though sometimes he is allowed to have all the honour of inventing the art, he is, on other occasions, obliged to share it with Osiris, Isis, and Apis, or Serapis.

After all, the Egyptian physic appears to have been little else than a collection of absurd superstitions. Origen informs us, that they believed there were 36 demons, or gods of the air, who divided the human body among them; that they had names for all of them; and that, by invoking them according to the part affected, the patient was cured. Of natural medicines we hear of none recommended by the father of Egyptian physic; except the herb *moly*, which he gave to Ulysses in order to secure him from the enchantments of Circe; and the herb *mercury*, of which he first discovered the use. His successors made use of venesection, cathartics, emetics, and clysters. There is no proof, however, that this practice was established by Hermes; on the contrary, the Egyptians themselves pretended, that the first hint of those remedies was

taken from some observations on brute animals. Venesection was taught them by the hippopotamus, which is said to perform this operation upon itself. On these occasions, he comes out of the river, and strikes his leg against a sharp-pointed reed. As he takes care to direct the stroke against a vein, the consequence must be a considerable effusion of blood; and this being suffered to run as long as the creature thinks proper, he at last stops up the orifice with mud. The hint of clysters was taken from the ibis, a bird which is said to give itself clysters with its bill, &c. They used venesection, however, but very little, probably on account of the warmth of the climate; and the exhibition of the remedies above mentioned, joined with abstinence, formed the most of their practice.

The Greeks too had several persons to whom they attributed the invention of physic, particularly Prometheus, Apollo or Pæan, and Æsculapius; which last was the most celebrated of any. But here we must observe, that as the Greeks were a very warlike people, their physic seems to have been little else than what is now called *surgery*, or the cure of wounds, fractures, &c. Hence Æsculapius, and his pupils Chiron, Machaon, and Podalirius, are celebrated by Homer only for their skill in curing these, without any mention of their attempting the cures of internal diseases. We are not, however, to suppose that they confined themselves entirely to surgery. They no doubt would occasionally prescribe for internal disorders; but as they were most frequently conversant with wounds, we may naturally suppose the greatest part of their skill to have consisted in knowing how to cure these. If we may believe the poets, indeed, the knowledge of medicine seems to have been very generally diffused. Almost all the heroes of antiquity are reported to have been physicians as well as warriors. Most of them were taught physic by the Centaur Chiron. From him Hercules received instructions in the medicinal art, in which he is said to have been no less expert than in feats of arms. Several plants were called by his name; from whence some think it probable that he found out their virtues, though others are of opinion that they bore the name of this renowned hero on account of their great efficacy in removing diseases. Aristæus king of Arcadia was also one of Chiron's scholars, and supposed to have discovered the use of the drug called *silphium*, by some thought to be *asafoetida*. Theseus, Telamon, Jason, Peleus, and his son Achilles, were all renowned for their knowledge in the art of physic. The last is said to have discovered the use of verdigris in cleansing foul ulcers. All of them, however, seem to have been inferior in knowledge to Palamedes, who hindered the plague from coming into the Grecian camp after it had ravaged most of the cities of Hellepont, and even Troy itself. His method was to confine his soldiers to a spare diet, and to oblige them to use much exercise.

The practice of these ancient Greek physicians, notwithstanding the praises bestowed on them by their poets, seems to have been very limited, and in some cases even pernicious. All the external remedies applied to Homer's wounded heroes were fomentations; while, inwardly, their physicians gave them wine, sometimes mingled with cheese scraped down. A great deal of their physic also consisted in charms, incantations, amulets, &c. of which, as they are common to all superstitious and ignorant nations, it is superfluous to take any farther notice.

In this way the art of medicine continued among the Greeks for many ages. As its first professors knew nothing of the animal economy, and as little of the theory of diseases, it is plain, that whatever they did must have been in consequence of mere random trials, or empiricism, in the most strict and proper sense of the word.

Indeed, it is evidently impossible that this, or almost any other art, could originate from any other source than trials of this kind. Accordingly, we find, that some ancient nations were accustomed to expose their sick in temples, and by the sides of highways, that they might receive the advice of every one who passed. Among the Greeks, however, *Æsculapius* was reckoned the most eminent practitioner of his time, and his name continued to be revered after his death. He was ranked amongst the gods; and the principal knowledge of the medicinal art remained with his family to the time of *Hippocrates*, who reckoned himself the seventeenth in a lineal descent from *Æsculapius*, and who was truly the first who treated of medicine in a regular and rational manner.

HIPPOCRATES, who is supposed to have lived 400 years before the birth of Christ, is the most ancient author whose writings, expressly on the subject of the medical art, are preserved; and he is therefore justly considered as the father of physic. All the accounts which we have prior to this time, if not evidently fabulous, are, at the utmost, highly conjectural. Even the medical knowledge of *Pythagoras*, so much celebrated as a philosopher, can hardly be considered as resting on any other foundation. But from the time of *Hippocrates*, medicine, separated from philosophy and religion, seems to have assumed the form of a science, and to have been practised as a profession. It may not, therefore, be improper to give a particular account of the state of medical knowledge as transmitted to us in his writings. The writings of *Hippocrates*, however, it may be remarked, are even more than preserved. Nor is it wonderful that attempts should have been made to increase the value of manuscripts, by attributing them to a name of such eminence. But although what are transmitted to us under the title of his works may have been written by different hands, yet the presumption is, that most, if not all of them, are of nearly as early a date, and contain the prevailing opinions of those times.

According to the most authentic accounts, *Hippocrates* was a

native of the island of Cos, and born in the beginning of the 83th Olympiad. In the writings transmitted to us as his, we find a general principle adopted, to which he gives the name of *Nature*. To this principle he ascribes a mighty power. "Nature (says he) is of itself sufficient to every animal. She performs every thing that is necessary to them without needing the least instruction from any one how to do it." Upon this footing, as if Nature had been a principle endowed with knowledge, he gives her the title of *just*; and ascribes virtues or powers to her, which are her servants, and by means of which she performs all her operations in the bodies of animals; and distributes the blood, spirits, and heat, through all parts of the body, which, by these means, receive life and sensation. And in other places he tells us, that it is this faculty which gives nourishment, preservation, and growth, to all things.

The manner in which Nature acts, or commands her subservient power to act, is by attracting what is good and agreeable to each species, and by retaining, preparing, and changing it; and on the other hand, in rejecting whatever is superfluous or hurtful, after she has separated it from the good. This is the foundation of the doctrine of depuration, concoction, and crisis in fevers, so much insisted upon by Hippocrates and most other physicians. He supposes also, that every thing has an inclination to be joined to what agrees with it, and to remove from every thing contrary to it; and likewise that there is an affinity between the several parts of the body, by which they mutually sympathize with each other. When he comes to explain what this principle called *nature* is, he is obliged to resolve it into *heat*, which, he says, appears to have something immortal in it.

As far as he attempts to explain the causes of disease, he refers much to the humours of the body, particularly to the blood and the bile. He treats also of the effects of sleep, watchings, exercise, and rest; and all the benefit or mischief we may receive from them. Of all the causes of diseases, however, mentioned by Hippocrates, the most general are diet and air. On the subject of diet he has composed several books, and in the choice of this he was exactly careful; and the more so, as his practice turned almost wholly upon it. He also considered the air very much; he examined what winds blew ordinarily or extraordinarily; he considered the irregularity of the seasons, the rising and setting of stars, or the time of certain constellations; also the time of the solstices, and of the equinoxes: those days, in his opinion, producing great alterations in certain distempers.

He does not, however, pretend to explain how, from these causes, that variety of diseases arises which is daily to be observed. All that can be gathered from him with regard to this is, that the different causes above mentioned, when applied to the different parts of

the body, produce a great variety of disorders. Some of these he accounted *mortal*, others *dangerous*, and the rest easily *curable*, according to the cause from whence they spring, and the parts on which they fall. In several places also he distinguishes diseases, from the time of their duration, into *acute* or *short*, and *chronical* or *long*. He likewise distinguishes diseases by the particular places where they prevail, whether ordinary or extraordinary. The first, that is, those that are frequent and familiar to certain places, he called *endemic* diseases; and the latter, which ravaged extraordinarily sometimes in one place, sometimes in another, which seized great numbers at certain times, he called *epidemic*, that is, *popular* diseases; and of this kind the most terrible is the plague. He likewise mentions a third kind, the opposite of the former; and these he calls *sporadic*, or straggling diseases: these last include all the different sorts of distempers which invade at any one season, which are sometimes of one sort, and sometimes of another. He distinguished between those diseases which are hereditary, or born with us, and those which are contracted afterwards; and likewise between those of a *kindly* and such as are of a *malignant* nature, the former of which are easily and frequently cured, but the latter give the physicians a great deal of trouble, and are seldom overcome by all their care.

Hippocrates remarked four stages in diseases; viz. the beginning of the disease, its augmentation, its state or height, and its declination. In such diseases as terminate fatally, death comes in place of the declination. In the third stage, therefore, the change is most considerable, as it determines the fate of the sick person; and this is most commonly done by means of a *crisis*. By this word he understood any sudden change in sickness, whether for the better or for the worse, whether health or death succeed immediately. Such a change, he says, is made at that time by *nature*, either absolving or condemning the patient. Hence we may conclude, that Hippocrates imagined disease to be only a disturbance of the animal economy, with which Nature was perpetually at variance, and using her utmost endeavours to expel the offending cause. Her manner of acting on these occasions is to reduce to their natural state those humours whose discord occasions the disturbance of the whole body, whether in relation to their quantity, quality, mixture, motion, or any other way in which they become offensive. The principal means employed by nature for this end is what Hippocrates calls *concoction*. By this he understood the bringing the morbid matter lodged in the humours to such a state, as to be easily fitted for expulsion by whatever means nature might think most proper. When matters are brought to this pass, whatever is superfluous or hurtful immediately expels itself, or nature points out to physicians the way by which such an evacuation is to be accomplished. The crisis takes place either by bleeding, stool, vomit,

sweat, urine, tumors or abscesses, scabs, pimples, spots, &c. But these evacuations are not to be looked upon as the effects of a true crisis, unless they are in considerable quantity; small discharges not being sufficient to make a crisis. On the contrary, small discharges are a sign that Nature is depressed by the load of humours, and that she lets them go through weakness and continual irritation. What comes forth in this manner is *crude*, because the distemper is yet too strong; and while matters retain this state, nothing but a bad or imperfect crisis is to be expected. This shows that the distemper triumphs, or at least is equal in strength to nature, which prognosticates death, or a prolongation of the disease. In this last case, however, nature often has an opportunity of attempting a new crisis more happy than the former, after having made fresh efforts to advance the concoction of the humours.—It must here be observed, however, that according to Hippocrates, concoction cannot be made but in a certain time, as every fruit has a limited time to ripen; for he compares the humours which nature has digested to fruits come to maturity.

The time required for concoction depends on the differences among distempers mentioned above. In those which Hippocrates calls *very acute*, the digestion or crisis happens by the fourth day; in those which are only *acute*, it happens on the 7th, 11th, or 14th day; which last is the longest period generally allowed by Hippocrates in distempers that are truly acute: though in some places he stretches it to the 20th or 21st, nay sometimes to the 40th or 60th days. All diseases that exceed this last term are called *chronical*. And while in those diseases that exceed 14 days he considers every fourth day as critical, or at least remarkable, by which we may judge whether the crisis on the following fourth day will be favourable or not; so in those which run from 20 to 40 he reckons only the sevenths, and in those that exceed 40 he begins to reckon by 20. Beyond the 120th he thinks that the number of days has no power over the crises. They are then referred to the general changes of the seasons; some terminating about the equinoxes; others about the solstices; others about the rising or setting of the stars of certain constellations; or if numbers have yet any place, he reckons by months, or even whole years. Thus (he says), certain diseases in children have their crisis in the 7th month after their birth, and others in their 7th or even their 14th year.

Though Hippocrates mentions the 21st as one of the critical days in acute diseases, as already noticed; yet, in other places of his works, he mentions also the 20th. The reason he gives for this in one of those places of his works is, that the days of sickness were not quite entire. In general, however, he is much attached to the odd days: insomuch that in one of his aphorisms he tells us, “The sweats that come out upon the 3d, 5th, 7th,

9th, 11th, 14th, 17th, 21st, 27th, 31st, or 34th-days, are beneficial; but those that come out upon other days signify that the sick shall be brought low, that his disease shall be very tedious, and that he shall be subject to relapses." He further says, "That the fever which leaves the sick upon any but an odd day is usually apt to relapse." Sometimes, however, he confesses that it is otherwise; and he gives an instance of a salutary crisis happening on the sixth day. But these are very rare instances, and therefore cannot, in his opinion, overthrow the general rule.

Besides the crisis, however, or the change which determines the fate of the patient, Hippocrates often speaks of another, which only changes the species of the distemper, without restoring the patient to health; as when a vertigo is turned to an epilepsy, a tertian fever to a quartan, or to a continual, &c.

But what has chiefly contributed to procure the vast respect generally paid to Hippocrates, is his industry in observing the most minute circumstances of diseases, and his exactness in nicely describing every thing that happened before, and every accident that appeared at the same time with them; and likewise what appeared to give ease, and what to increase the malady: which is what we call *writing the history of a disease*.—Thus he not only distinguished one disease from another by the signs which properly belonged to each; but by comparing the same sort of distemper which happened to several persons, and the accidents which usually appeared before and after, he could often foretel a disease before it came, and afterwards give a right judgment of the event of it. By this way of prognosticating, he came to be exceedingly admired: and this he carried to such a height, that it may justly be said to be his master-piece; and Celsus, who lived after him, remarks, that succeeding physicians, though they found out several new things relating to the management of diseases, yet were obliged to the writings of Hippocrates for all that they knew of signs.

The first thing Hippocrates considered, when called to a patient, was his looks.—It was a good sign with him to have a visage resembling that of a person in health, and the same with what the sick man had before he was attacked by the disease. As it varied from this, so much the greater danger was apprehended. The following is the description which he gives of the looks of a dying man.—“When a patient (says he) has his nose sharp, his eyes sunk, his temples hollow, his ears cold and contracted, the skin of his forehead tense and dry, and the colour of his face tending to a pale-green, or lead colour, one may give out for certain that death is very near at hand; unless the strength of the patient has been exhausted all at once by long watchings, or by a looseness, or being a long time without eating.” This observation has been confirmed by those of succeeding physicians, who have, from him, denominated it the *Hippocratic face*. The lips hanging relaxed

and cold, are likewise looked upon by this author as a confirmation of the foregoing prognostic. He took also his signs from the disposition of the eyes in particular. When a patient cannot bear the light; when he sheds tears involuntarily; when, in sleeping, some part of the white of the eye is seen, unless he usually sleeps after that manner, or has a looseness upon him: these signs, as well as the foregoing ones, prognosticate danger. The eyes deadened, as it were with a mist spread over them, or their brightness lost, likewise presages death, or great weakness. The eyes sparkling, fierce, and fixed, denote the patient to be delirious, or that he soon will be seized with a phrensy. When the patient sees any thing red, and like sparks of fire and lightning pass before his eyes, you may expect an hæmorrhagy; and this often happens before those crises which are to be attended by a loss of blood.

The condition of the patient is also shown by his posture in bed. If you find him lying on one side, his body, neck, legs, and arms, a little contracted, which is the posture of a man in health, it is a good sign: on the contrary, if he lies on his back, his arms stretched out, and his legs hanging down, it is a sign of great weakness; and particularly when the patient slides or lets himself fall down towards the feet, it denotes the approach of death. When a patient in a burning fever is continually feeling about with his hands and fingers, and moves them up before his face and eyes as if he was going to take away something that passed before them; or on his bed-covering, as if he was picking or searching for little straws, or taking away some filth, or drawing out little flocks of wool; all this is a sign that he is delirious, and that he will die. Amongst the other signs of a present or approaching delirium he also adds this: When a patient who naturally speaks little begins to talk more than he used to do, or when one that talks much becomes silent, this change is to be reckoned a sort of delirium, or is a sign that the patient will soon fall into one. The frequent trembling or starting of the tendons of the wrist, presage likewise a delirium. As to the different sorts of delirium, Hippocrates is much more afraid of those that run upon mournful subjects, than such as are accompanied with mirth.

When a patient breathes fast, and is oppressed, it is a sign that he is in pain, and that the parts above the diaphragm are inflamed. Breathing long, or when the patient is a great while in taking his breath, shows him to be delirious; but easy and natural respiration is always a good sign in acute diseases. Hippocrates depended much on respiration in making his prognostics; and therefore has taken care, in several places, to describe the different manner of a patient's breathing. Continual watchings in acute diseases, are signs of present pain, or a delirium near at hand.

Hippocrates also drew signs from all excrements, whatever they are, that are separated from the body of man. His most remark-

able prognostics, however, were from the urine. The patient's urine, in his opinion, is best when the sediment is white, soft to the touch, and of an equal consistence. If it continue so during the course of the distemper, and till the time of the crisis, the patient is in no danger, and will soon be well. This is what Hippocrates called *concocted urine*, or what denotes the concoction of the humours; and he observed, that this concoction of the urine seldom appeared thoroughly, but on the days of the crisis which happily put an end to the distemper. "We ought (said Hippocrates) to compare the urine with the purulent matter which runs from ulcers. As the pus, which is white, and of the same quality with the sediment of the urine we are now speaking of, is a sign that the ulcer is on the point of closing; so that which is clear, and of another colour than white, and of an ill smell, is a sign that the ulcer is virulent, and in the same manner difficult to be cured: the urines that are like this we have described, are only those which may be named good; all the rest are ill, and differ from one another only in the degrees of more and less. The first never appear but when nature has overcome the disease; and are a sign of the concoction of humours, without which you cannot hope for a certain cure. On the contrary, the last are made as long as the crudity remains, and the humours continue unconcocted. Among the urines of this last sort, the best are reddish, with a sediment that is soft, and of an equal consistence; which denotes, that the disease will be somewhat tedious, but without danger. The worst are those which are very red, and at the same time clear and without sediment; or that are muddy and troubled in the making. In urine there is often a sort of cloud hanging in the vessel in which it is received; the higher this rises, or the farther distant it is from the bottom, or the more different from the colour of the laudable sediment above mentioned, the more there is of crudity. That which is yellow, or of a sandy-colour, denotes abundance of bile; that which is black is the worst, especially if it has an ill smell, and is either altogether muddy or altogether clear. That whose sediment is like large ground wheat, or little flakes or scales spread one upon another, or bran, presages ill, especially the last. The fat or oil that sometimes swims upon the top of the urine, and appears in a form something like a spider's web, is a sign of a consumption of the flesh and solid parts. The making of a great quantity of urine is the sign of a crisis, and sometimes the quality of it shows how the bladder is affected. We must also observe, that Hippocrates compared the state of the tongue with the urine; that is to say, when the tongue was yellow, and charged with bile, the urine, he knew, must of course be of the same colour; and when the tongue was red and moist, the urine was of its natural colour.

His prognostics from the excretions by stool are as follow. Those that are soft, yellowish, of some consistence, and not of an extraor-

Unary ill smell, that answer to the quantity of what is taken inwardly, and that are voided at the usual hours, are the best of all. They ought also to be of a thicker consistence when the distemper is near the crisis; and it ought to be taken for a good prognostic, when some worms, round and long, are evacuated at the same time with them. The prognosis, however, may still be favourable, though the matter excreted be thin and liquid, provided it make not too much noise in coming out, and the evacuation be not in a small quantity nor too often; nor in so great abundance, nor so often, as to make the patient faint. All matter that is watery, white, of a pale green, or red, or frothy and viscous, is bad. That which is blackish, or of a livid hue, is the most pernicious. That which is pure black, and nothing else but a discharge of black bile, always prognosticates very ill; this humour, from what part soever it comes, showing the ill disposition of the intestines. The matter that is of several different colours, denotes the length of the distemper; and, at the same time, that it may be of dangerous consequence. Hippocrates places in the same class the matter that is bilious or yellow, and mixed with blood, or green and black, or like the dregs or scrapings of the guts. The stools that consist of pure bile, or entirely of phlegm, he also looks upon to be very bad.

Matter cast up by vomiting ought to be mixed with bile and phlegm; where one of these humours only is observed, it is worse. That which is black, livid, green, or of the colour of a leek, indicates alarming consequences. The same is to be said of that which smells very ill; and if at the same time it be livid, death is not far off. The vomiting of blood is very often mortal.

The spittings which give ease in diseases of the lungs and in pleurisy, are those that come up readily and without difficulty; and it is good if they be mixed at the beginning with much yellow: but if they appear of the same colour, or are red, a great while after the beginning of the distemper, are salt and acrimonious, and cause violent coughings, they are not good. Spittings purely yellow are bad; and those that are white, viscous, and frothy, give no ease. Whiteness is a good sign of concoction in regard to spittings; but they ought not at all to be viscous, nor too thick, nor too clear. We may make the same judgment of the excrements of the nose according to their concoction and crudity. Spittings that are black, green, and red, are of very bad consequence. In inflammations of the lungs, those that are mixed with bile and blood preface well if they appear at the beginning, but are bad if they arise not about the seventh day. But the worst sign in these disorders is, when there is no expectoration at all, and the too great quantity of matter that is ready to be discharged this way makes a rattling in the breast. After spitting of blood, the discharge of purulent mat-

ter often follows, which brings on a consumption, and at last death.

A kind good sweat is that which arises on the day of the crisis, and is discharged in abundance all over the body, and at the same time from all parts of the body, and thus carries off the fever. A cold sweat is alarming, especially in acute fevers, for in others it is only a sign of long continuance. When the patient sweats nowhere but on the head and neck, it is a sign that the disease will be long and dangerous. A gentle sweat in some particular part, of the head and breast for instance, gives no relief, but denotes the seat of the distemper, or the weakness of the part. This kind of sweat was called by Hippocrates *epidrosis*.

The hypochondria, or the abdomen in general, ought always to be soft and even, as well on the right side as on the left. When there is any hardness or unevenness in those parts, or heat and swellings, or when the patient cannot endure to have it touched, it is a sign the intestines are indisposed.

Hippocrates also inquired into the state of the pulse, or the beating of the arteries. The most ancient physicians, however, and even Hippocrates himself, for a long time, by this word understood the violent pulsation that is felt in an inflamed part, without putting the fingers to it.

It is observed by Galen, and other physicians, that Hippocrates touches on the subject of the pulse more slightly than any other on which he treats. But that our celebrated physician understood something even on this subject, is easily gathered from several passages in his writings; as when he observes, that in acute fevers the pulse is very quick and very great; and when he makes mention, in the same place, of trembling pulses, and those that beat slowly; when he observes, that in some diseases incident to women, when the pulse strikes the finger faintly, and in a languishing manner, it is a sign of approaching death. He remarks also, in the *Coacæ Prænotiones*, that he whose vein, that is to say, whose artery of the elbow, beats, is just going to run mad; or else that the person is at that time very much under the influence of anger.

From this account of Hippocrates, it will appear, that he was not near so much taken up with reasoning on the phenomena of diseases, as with reporting them. He was content to observe these phenomena accurately, to distinguish diseases by them, and judged of the event by comparing them exactly together. For his skill in prognostics he was indeed very remarkable, as we have already mentioned, insomuch that he and his pupils were looked upon by the vulgar as prophets. What adds very much to his reputation is, that he lived in an age when physic was altogether buried in superstition, and yet he did not suffer himself to be carried away by it: on the contrary, on many occasions, he expresses his abhorrence of it.

Having thus seen in what Hippocrates makes the difference between health and sickness to consist, and likewise the most remarkable signs from whence he drew his prognostics, we must now consider the means he prescribed for the preservation of health, and the cure of diseases. One of his principal maxims was this, That, to preserve health, we ought not to overcharge ourselves with much eating, nor neglect the use of exercise and labour. In the next place, That we ought by no means to accustom ourselves to too nice and exact a method of living; because those who have once begun to act by this rule, if they vary in the least from it, find themselves very ill; which does not happen to those who take a little more liberty, and live somewhat more irregularly. Notwithstanding this, he does not neglect to inquire diligently into what those who were in health used for food in his time. Here we cannot help taking notice of the prodigious disparity between the delicacy of the people in our days and those of Hippocrates: for he takes great pains to tell the difference between the flesh of a dog, a fox, a horse, and an ass; which he would not have done if at that time they had not been used for victuals, at least by the common people. Besides these, however, Hippocrates speaks of all other kinds of provision that are now in use; for example, sallads, milk, whey, cheese, flesh, as well of birds as of four-footed beasts, fresh and salt fish, eggs, all kinds of pulse, and the different kinds of grain we feed on, as well as the different sorts of bread that are made of it. He also speaks very often of a sort of liquid food, or broth, made of barley-meal, or some other grain, which they steeped for some time, and then boiled in water. With regard to drink, he takes a great deal of pains to distinguish the good waters from the bad. The best, in his opinion, ought to be clear, light, without smell or taste, and taken out of the fountains that turn towards the east. The salt-waters, those that he calls hard, and those that rise out of fenny ground, are the worst of all; he condemns also those that come from melted snow. But though Hippocrates makes all these distinctions, he advises those who are in health to drink of the first water that comes in their way. He speaks also of alum waters, and those that are hot; but does not enlarge upon their qualities. He advises to mix wine with an equal quantity of water: and this (he says) is the just proportion; by using which the wine will expel what is hurtful to the body, and the water will serve to temper the acrimony of the humours.

For those that are in health, and likewise for such as are sick, Hippocrates advises exercise. The books, however, which treat on this subject, M. Le Clerc conjectures to have been written by Herodicus, who first introduced gymnastic exercise into medicine, and who is said, by Hippocrates himself, to have killed several people by forcing them to walk while they were afflicted with fevers and other inflammatory disorders. The advices given in them consist

mostly in directions for the times in which we ought to walk, and and the condition we ought to be in before it; when we ought to walk slowly, and when to run, &c.; and all this with respect to different ages and temperaments, and with design to bring the body down, or dissipate the humours. Wrestling, although a violent exercise, is numbered with the rest. In the same place also mention is made of a play of the hands and fingers, which was thought good for health, and called *chiromie*; and of another diversion which was performed round a sort of ball hung up, which they called *corycus*, and which they struck forward with both their hands.

With regard to those things which ought to be separated from, or retained in the human body, Hippocrates observes, that people ought to take great care not to load themselves with excrements, or keep them in too long; and besides the exercise above mentioned, which carries off one part of them, and which he prescribed chiefly on this account, he advises people to excite and rouse up Nature, when she flagged and did not endeavour to expel the rest, or take care of the impediments by which she was resisted. For this reason he prescribed meats proper for loosening the belly; and when these were not sufficient, he directed the use of clysters and suppositories. For thin and emaciated persons he directed clysters composed only of milk and oily unctuous substances, which they mixed with a decoction of chick-pease; but for such as were plethoric, they only made use of salt, or sea, water.

As a preservative against distempers, Hippocrates also advised the use of vomits, which he directed to be taken once or twice a month during the time of winter and spring. The most simple of these were made of a decoction of hyssop, with an addition of a little vinegar and salt. He made those that were of a strong and vigorous constitution take this liquor in a morning fasting; but such as were thin and weakly took it after supper.—Venery, in his opinion, is wholesome, provided people consult their strength, and do not pursue it to excess; which he finds fault with on all occasions, and would have excess avoided also in relation to sleep and watching. In his writings are likewise to be found several remarks concerning good and bad air; and he makes it appear that the good or bad disposition of this element does not depend solely on the difference of the climate, but on the situation of every place in particular. He speaks also of the good and bad effects of the passions, and recommends moderation in regard to them.

From what we have already related concerning the opinions of Hippocrates, it may naturally be concluded, that, for the most part, he would be contented with observing what the strength of nature is able to accomplish without being assisted by the physician. That this was really the case, may be easily perceived from a perusal of his books entitled, “Of epidemical distempers;” which

are, as it were, journals of the practice of Hippocrates: for there we find him often doing nothing more than describing the symptoms of a disease, and informing us what has happened to the patient day after day, even to his death or recovery; without speaking a word of any kind of remedy. Sometimes, however, he did indeed make use of remedies; but these were exceedingly simple and few, in comparison of what have been given by succeeding practitioners. These remedies we shall presently consider, after we have given an abridgement of the principal maxims on which his practice is founded.

Hippocrates asserted in the first place, that contraries, or opposites, are the remedies for each other; and this maxim he explains by an aphorism; in which he says, that evacuations cure those distempers which come from repletion, and repletion those that are caused by evacuation. So heat is destroyed by cold, and cold by heat, &c. In the second place, he asserted, that physic is an addition of what is wanting, and a subtraction or retrenchment of what is superfluous: an axiom which is explained by this, viz. that there are some juices or humours, which in particular cases ought to be evacuated, or driven out of the body, or dried up; and some others which ought to be restored to the body, or caused to be produced there again. As to the method to be taken for this addition or retrenchment, he gives this general caution, that you ought to be careful how you fill up, or evacuate, all at once, or too quickly, or too much; and that it is equally dangerous to heat or cool again on a sudden; or rather, you ought not to do it: every thing that runs to an excess being an enemy to nature. In the fourth place, Hippocrates allowed that we ought sometimes to dilate, and sometimes to lock up: to dilate, or open the passages by which the humours are voided naturally, when they are not sufficiently opened, or when they are closed; and, on the contrary, to lock up or straiten the passages that are relaxed, when the juices that pass there ought not to pass, or when they pass in too great quantity. He adds, that we ought sometimes to smooth, and sometimes to make rough; sometimes to harden, and sometimes to soften again; sometimes to make more fine or supple, sometimes to thicken; sometimes to rouse up, and at other times to stupify or take away the sense: all in relation to the solid parts of the body, or to the humours. He gives also this farther lesson, That we ought to have regard to the course the humours take; from whence they come, and whither they go; and in consequence of that, when they go where they ought not, that we make them take a turn about, or carry them another way, almost like the turning the course of a river: or, upon other occasions, that we endeavour if possible to recal, or make the same humours return back again; drawing upward such as have a tendency downward,

and drawing downward such as tend upward. We ought also to carry off, by convenient ways, that which is necessary to be carried off; and not let the humours once evacuated enter into the vessels again. Hippocrates gives also the following instruction, That when we do any thing according to reason, though the success be not answerable, we ought not too easily, or too hastily, to alter the manner of acting, as long as the reasons for it are yet good. But as this maxim might sometimes prove deceitful, he gives the following as a corrector to it: "We ought (says he) to mind with a great deal of attention, what gives ease, and what creates pain; what is easily supported, and what cannot be endured." We ought not to do any thing rashly; but ought often to pause, or wait, without doing any thing: by this way, if you do the patient no good, you will at least do him no hurt.

These are the principal and most general maxims of the practice of Hippocrates, and which proceed upon the supposition laid down at the beginning, viz. that nature cures diseases. We next proceed to consider particularly the remedies employed by him, which will serve to give us further instructions concerning his practice.

Diet was the first, the principal, and often the only remedy made use of by this great physician to answer the greatest part of the intentions above mentioned: by means of it he opposed moist to dry, hot to cold, &c.; and what he looked upon to be the most considerable point was, that thus he supported Nature, and assisted her to overcome the malady. The dietetic part of medicine was so much the invention of Hippocrates himself, that he was very desirous to be accounted the author of it; and the better to make it appear that it was a new remedy in his days, he says expressly, that the ancients had wrote almost nothing concerning the diet of the sick, having omitted this point, though it was one of the most essential parts of the art.

The diet prescribed by Hippocrates for patients labouring under acute distempers, differed from that which he ordered for those afflicted with chronical ones. In the former, which require a more particular exactness in relation to diet, he preferred liquid food to that which was solid, especially in fevers. For these he used a sort of broth made of cleansed barley; and to this he gave the name of *ptisan*. The manner in which the ancients prepared a *ptisan* was as follows: They first steeped the barley in water till it was plumped up; and afterwards they dried it in the sun, and beat it to take off the husk. They next ground it; and having let the flour boil a long time in the water, they put it out into the sun, and when it was dry they pressed it close. It is properly this flour so prepared that is called *ptisan*. They did almost the same thing with wheat, rice, lentils, and other grain:

but they gave these ptisans the name of the grain from whence they were extracted, as *ptisan of lentils, rice, &c.* whereas the ptisan of barley was called simply *ptisan*, on account of the excellence of it. When they wanted to use it, they boiled one part of it in 10 or 15 of water; and when it began to grow plump in boiling, they added a little vinegar, and a very small quantity of anise or leek, to keep it from clogging or filling the stomach with wind. Hippocrates prescribes this broth for women that have pains in their belly after delivery. "Boil some of this ptisan (says he), with some leek, and the fat of a goat, and give it to the woman in bed." This will not be thought very singular, if we reflect on what has been hinted above concerning the indelicate manner of living in those times. He preferred the ptisan to all other food in fevers, because it softened and moistened much, and was besides of easy digestion. If he was concerned in a continual fever, he would have the patient begin with a ptisan of a pretty thick consistence, and go on by little and little, lessening the quantity of barley-flour as the height of the distemper approached; so that he did not feed the patient but with what he called the *juice of the ptisan*; that is, the ptisan strained, where there was but very little of the flour remaining, in order that Nature being discharged in part from the care of digesting the aliments, she might the more easily hold out to the end, and overcome the distemper, or the cause of it. With regard to the quantity, he caused the ptisan to be taken twice a-day by such patients as in health used to take two meals a-day, not thinking it convenient that those who were sick should eat oftener than when they were well. He also would not allow eating twice a-day to those who eat but once in that time when in health. In the paroxysm of a fever he gave nothing at all; and in all diseases where there are exacerbations, he forbade nourishment while the exacerbations continued. He let children eat more; but those who were grown up to man's estate, or were of an advanced age, less; making allowance, however, for the custom of each particular person, or for that of the country.

But though he was of opinion that too much food ought not to be allowed to the sick, he was not of the mind of some physicians who prescribed long abstinence, especially in the beginning of fevers. The reason he gave for this was, that the contrary practice weakened the patients too much during the first days of the disorder, by which means their physicians were obliged to allow them more food when the illness was at its height, which in his opinion was improper. Besides, in acute diseases, and particularly in fevers, Hippocrates made choice of refreshing and moistening nourishment; and amongst other things prescribed orange, melon, spinach, gourd, and dock. This sort of food he

gave to those that were in a condition to eat, or could take something more than a ptisan.

The drink he commonly gave to his patients was made of eight parts of water and one of honey. In some distempers they added a little vinegar; but besides these, they had another sort named *κυνεων*, or *mixture*. One prescription of this sort we find intended for a consumptive person; it consisted of rue, anise, celery, coriander, juice of pomegranate, the roughest red wine, water, flour of wheat and barley, with old cheese made of goats' milk. Hippocrates did not approve of giving plain water to the sick; but though he generally prescribed the drinks above mentioned, he did not absolutely forbid the use of wine, even in acute disorders and fevers, provided the patient were not delirious nor had pains in the head. Besides, he took care to distinguish the wines proper in these cases; preferring to all other sorts white-wine that is clear and has a great deal of water, with neither sweetness nor flavour.

These are the most remarkable particulars concerning the diet prescribed by Hippocrates in acute diseases: in chronical ones he made very much use of milk and whey; though we are not certain whether this was done on account of the nourishment expected from them, or that he accounted them medicines.

There are many diseases for which he judged the bath was a proper remedy; and he takes notice of all the circumstances that are necessary in order to make the patient receive benefit from it, among which the following are the principal. The patient that bathes himself must remain still and quiet in his place, without speaking, while the assistants throw water over his head or are wiping him dry; for which last purpose he desired them to keep sponges, instead of that instrument called by the ancients *strigil*, which served to rub off from the skin the dirt and nastiness left upon it by the unguents and oils with which they anointed themselves. He must also take care not to catch cold; and must not bathe immediately after eating and drinking, nor eat or drink immediately after coming out of the bath. Regard must also be had whether the patient has been accustomed to bathe while in health, and whether he has been benefited or hurt by it. Lastly, he must abstain from the bath when the body is too open, or too costive, or when he is too weak; or if he has an inclination to vomit, a great loss of appetite, or bleed at the nose. The advantage of the bath, according to Hippocrates, consists in moistening and refreshing, taking away weariness, making the skin soft and the joints pliant; in provoking urine, making the nostrils open, and opening the other excretories. He allows two baths in a day to those who have been accustomed to it in health.

In chronical diseases Hippocrates approved very much of

exercise, though he did not allow it in acute ones: but even in these he did not think that a patient ought always to lie a-bed; but tells us, that "we must sometimes push the timorous out of bed, and rouse up the lazy."

When he found that diet and exercise were not sufficient to ease nature of a burden of corrupted humours, he was obliged to make use of other means, of which *purgation* was one. By this word he understood all the contrivances that are made use of to discharge the stomach and bowels; though it commonly signifies only the evacuation of the belly by stool. This evacuation he imagined to be occasioned by the purgative medicines attracting the humours to themselves. When first taken into the body, he thought they attracted that humour which was most similar to them, and then the others, one after another.—Most of the purgatives used in his time were emetics also, or at least were very violent in their operation downwards. These were the white and black hellebore; the first of which is now reckoned among the poisons. He used also the Cnidian berries, which are nothing else but the seeds of thymelea or chamælea; cneorum peplum, which is a sort of milk-thistle; thapsia; the juice of hippophaë, a sort of rhamnus; elaterium, or juice of the wild cucumber; flowers of brass, coloquintida, scammony, the magnesian stone, &c.

As these purgatives were all very strong, Hippocrates was extremely cautious in their exhibition. He did not prescribe them in the dog-days; nor did he ever purge women with child, and very seldom children or old people. He principally used purgatives in chronical disorders; but was much more wary in acute ones. In his books entitled "Of Epidemical Distempers," there are very few patients mentioned to whom he gave purgative medicines. He also takes notice expressly, that these medicines having been given in cases of the distempers of which he was treating, had produced very bad effects. We are not, however, from this to conclude, that Hippocrates absolutely condemned purging in acute diseases; for in some places he expressly mentions his having given them with success. He was of opinion, for instance, that purging was good in a pleurisy when the pain was seated below the diaphragm; and in this case he gave black hellebore, or some peplum mixed with the juice of *laserpitium*, which is supposed to have been our asafœtida.

The principal rule Hippocrates gives with relation to purging is, that we ought only to purge off the humours that are concocted, and not those that are yet crude, taking particular care not to do it at the beginning of the distemper, lest the humours should be disturbed or stirred up, which happens pretty often. He was not, however, the first who remarked that it would be of ill consequence to stir the humours in the beginning of an acute distemper.

The Egyptian physicians had before observed the same thing. By the beginning of a distemper, Hippocrates understood all the time from the first day to the fourth complete.

Hippocrates imagined that each purgative medicine was adapted to the carrying off some particular humour; and hence the distinction of purgatives into hydragogue, cholagogue, &c. which is now justly exploded. In consequence of this notion, which prevailed long after his time, he pretended that we knew if a purgative had drawn from the body what was fit to be evacuated according as we found ourselves well or ill upon it. If we found ourselves well, it was a sign that the medicine had effectually expelled the offending humour. On the contrary, if we were ill, he imagined, whatever quantity of humour came away, that the humour which caused the illness still remained; not judging of the goodness or badness of a purge by the quantity of matters that were voided by it, but by their quality and the effect that followed after it.

Vomits were also pretty much used as medicines by Hippocrates. We have already seen what those were which he prescribed to people in health by way of preventives. With regard to the sick, he sometimes advised them to the same, when his intentions were only to cleanse the stomach. But when he had a mind to recal the humours, as he termed it, from the inmost recesses of the body, he made use of brisker remedies. Among these was white hellebore; and this indeed he most frequently used to excite vomiting. He gave this root particularly to melancholy and mad people; and from the great use made of it in these cases by Hippocrates and other ancient physicians, the phrase *to have need of hellebore*, became a proverbial expression for being out of one's senses. He gave it also in defluxions, which come, according to him, from the brain, and throw themselves on the nostrils or ears, or fill the mouth with saliva, or that cause stubborn pains in the head, and a weariness or an extraordinary heaviness, or a weakness of the knees, or a swelling all over the body. He gave it to consumptive persons in broth of lentils, to such as were afflicted with the dropy called *leucophlegmatia*, and in other chronical disorders. But we do not find that he made use of it in acute distempers, except in the cholera morbus, where he says he prescribed it with benefit. Some took this medicine fasting; but most took it after supper, as was commonly practised with regard to vomits taken by way of prevention. The reason why he gave this medicine most commonly after eating was, that by mixing with the aliments, its acrimony might be somewhat abated, and it might operate with less violence on the membranes of the stomach. With the same intention also he sometimes gave a plant called *sesamoides*, and sometimes mixed it with hellebore.

Lastly, in certain cases he gave what he called *soft* or *sweet* hellebore. This term had some relation to the quality of the hellebore, or perhaps to the quantity he gave of it.

When Hippocrates intended only to keep the body open, or evacuate the contents of the intestines, he made use of simples; as for example, the herb mercury, or cabbage; the juice or decoction of which he ordered to be drank. For the same purpose he used whey, and also cows and asses milk; adding a little salt to it, and sometimes letting it boil a little. If he gave asses milk alone, he caused a great quantity of it to be taken, so that it must of necessity loosen the body. In one place he prescribes no less than nine pounds of it to be taken as a laxative, but does not specify the time in which it was to be taken. With the same intention he made use of suppositories and clysters. The former were compounded of honey, the juice of the herb mercury, of nitre, powder of colocynth, and other sharp ingredients, to irritate the anus. These they formed into a ball, or into a long cylindrical mass like a finger. The clysters he made use of for sick people were sometimes the same with those already mentioned as preventives for people in health. At other times he mixed the decoction of herbs with nitre, honey, and oil, or other ingredients, according as he imagined he could by that means attract, wash, irritate, or soften. The quantity of liquor he ordered was about 36 ounces; from which it is probable he did not intend that it should all be used at one time.

On some occasions Hippocrates proposed to purge the head alone. This practice he employed, after purging the rest of the body, in an apoplexy, inveterate pains of the head, a certain sort of jaundice, a consumption, and the greatest part of chronical diseases. For that purpose he made use of the juices of several plants, as celery; to which he sometimes added aromatic drugs, making the patients snuff up this mixture into their nostrils. He used also powders compounded of myrrh, the flowers of brass, and white hellebore, which he caused them to put up into the nose, to make them sneeze, and to draw the phlegm from the brain. For the same purpose also he used what he calls *tetraganon*, that is, "something having four angles;" but what this was, is now altogether unknown, and was so even in the days of Galen. The latter physician, however, conjectures it to be antimony, or certain flakes found in it.

In the distemper called *empyema* (or a collection of matter in the breast), he made use of a very rough medicine. He commanded the patient to draw in his tongue as much as he was able; and when that was done, he endeavoured to put into the hollow of the lungs a liquor that irritated the part, which, raising a violent cough, forced the lungs to discharge the purulent matter contained in them. The materials that he used for this purpose were of

different sorts; sometimes he took the root of arum, which he ordered to be boiled with a little salt, in a sufficient quantity of water and oil; dissolving a little honey in it. At other times, when he intended to purge more strongly, he took the flowers of copper and hellebore; after that he shook the patient violently by the shoulders, the better to loosen the pus. This remedy, according to Galen, he received from the Cnidian physicians; and it has never been used by the succeeding ones, probably because the patients could not suffer it.

Blood-letting was another method of evacuation pretty much used by Hippocrates. Another aim he had in this, besides the mere evacuation, was to divert or recal the course of the blood when he imagined it was going where it ought not. A third end of bleeding was to procure a free motion of the blood and spirits, as we may gather from the following passage: "When any one becomes speechless of a sudden (says he), it is caused by the shutting of the veins, especially when it happens to persons otherwise in good health, without any outward violence. In this case the inward vein of the right-arm must be opened, and more or less blood taken away, according to the age or constitution of the patient. Those that lose their speech thus have great flushings in their face, their eyes are stiff, their arms are distended, their teeth gnash, they have palpitations of the arteries, cannot open their jaws, the extremities are cold, and the spirits are intercepted in the veins. If pain ensues, it is by the accession of the black bile and sharp humours. For the internal parts being vellicated or irritated by these humours, suffer very much; and the veins, being also irritated and dried, distend themselves extraordinarily, and are inflamed, and draw all that can flow to them; so that the blood corrupting, and the spirits not being able to pass through the blood by their ordinary passages, the parts grow cold by reason of this stagnation of the spirits. Hence come giddiness, loss of speech, and convulsions, if this disorder reaches to the heart, the liver, or to the great veins. From hence arise also epilepsies and palsies, if the defluxions fall upon the parts last mentioned; and that they dry up, because the spirits are denied a passage through them. In this case, after fomentation, a vein must be opened, while the spirits and humours are yet suspended and unsettled."

Hippocrates had also a fourth intention for bleeding, and this was refreshment. So in the iliac passion, he orders bleeding in the arm and in the head; to the end, says he, that the superior venter, or the breast, may cease to be overheated. With regard to this evacuation, his conduct was much the same as to purging, in respect of time and persons. We ought, says he, to let blood in acute diseases, when they are violent, if the party be lusty and in the flower of his age. We ought also to have regard to the time, both in respect to the disease and to the season in which we let

blood. He also informs us, that blood ought to be let in great pains, and particularly in inflammations. Among these he reckons such as fall upon the principal viscera, as the liver, lungs, and spleen, as also the quinsy and pleurisy, if the pain of the latter be above the diaphragm. In these cases he would have the patients blooded till they faint, especially if the pain be very acute; or rather he advises that the orifice should not be closed till the colour of the blood alters, so that from livid it turn red, or from red livid. In a quinsy he blooded in both arms at once. Difficulty of breathing he also reckons among the diseases that require bleeding; and he mentions another sort of inflammation of the lungs, which he calls a swelling or tumor of the lungs arising from heat; in which case he advises to bleed in all parts of the body, and directs particularly to the arms, tongue, and nostrils. To make bleeding the more useful in all pains, he directed to open the vein nearest the part affected; in a pleurisy he directs to take blood from the arm of the side affected; and for the same reason, in pains of the head, he directs the veins of the nose and forehead to be opened. When the pain was not urgent, and bleeding was advised by way of prevention, he directed the blood to be taken from the parts farthest off, with a design to divert the blood insensibly from the seat of pain. The highest burning fevers, which show neither signs of inflammation nor pain, he does not rank among those disorders, that require bleeding. On the contrary, he maintains that a fever itself is, in some cases, a reason against bleeding. If any one, says he, has an ulcer in the head, he must bleed, *unless he has a fever*. He says further, those that lose their speech of a sudden must be blooded, unless they have a fever. Perhaps he was afraid of bleeding in fevers, because he supposed that they were produced by the bile and pituita, which grew hot, and afterwards heated the whole body, which is, says he, what we call *fever*, and which, in his opinion, cannot well be evacuated by bleeding. In other places also he looks upon the presence or abundance of bile to be an objection to bleeding; and he orders to forbear venesection even in a pleurisy, if there be bile.

To this we must add, that Hippocrates distinguished very particularly between a fever which followed no other distemper, but was itself the original malady, and a fever which came upon inflammation. In the early ages of physic, the first were only properly called *fevers*: others took their names from the parts affected; as *pleurisy*, *peripneumony*, *hepatitis*, *nephritis*, &c. which names signify that the pleura, the lungs, the liver, or the kidneys, are diseased, but do not intimate the fever which accompanies the disease. In this latter sort of fever Hippocrates constantly ordered bleeding, but not in the former. Hence, in his books "Of Epidemic Distempers," we find but few directions for bleeding in the acute ones, and particularly in the great number of continual

and burning fevers there treated of. In the first and third book we find but one single instance of bleeding, and that in a pleurisy; in which, too, he staid till the eighth day of the disorder. Galen, however, and most other commentators on Hippocrates, are of opinion, that he generally bled his patients plentifully in the beginning of acute disorders, though he takes no notice of it in his writings. But had this been the case, he would not perhaps have had the opportunity of seeing so many fevers terminated by crises, or natural evacuations, which happen of themselves on certain days. Hippocrates, in fact, laid so much weight upon the assistance of nature and the method of diet, which was his favourite medicine, that he thought if they took care to diet the patients before mentioned, according to rule, they might leave the rest to nature. These are his principles, from which he never deviates; so that his pieces "Of Epidemical Diseases" seem to have been composed only with an intention to leave to posterity an exact model of management in pursuance of these principles.

With regard to the rules laid down by Hippocrates for bleeding, we must further take notice, that in all diseases which had their seat above the liver, he bled in the arm, or in some of the upper parts of the body; but for those that were situated below it he opened the veins of the foot, ankle, or ham. If the belly was too laxative, and bleeding was at the same time thought necessary, he ordered the looseness to be stopped before bleeding.

Almost all these instances, however, regard scarce any thing but acute distempers; but we find several concerning chronical diseases. "A young man complained of great pain in his belly, with a rumbling while he was fasting, which ceased after eating: this pain and rumbling continuing, his meat did him no good; but, on the contrary, he daily wasted and grew lean. Several medicines, as well purges as vomits, were given him in vain. At length it was resolved to bleed him by intervals, first in one arm and then in the other, till he had scarcely any blood left, and by this method he was perfectly cured."

Hippocrates let blood also in a dropsy, even in a tympany; and in both cases he prescribes bleeding in the arm. In a disease occasioned by an overgrown spleen, he proposes bleeding several times repeated at a vein of the arm which he calls *splenetic*; and in a kind of jaundice, he proposes bleeding under the tongue. On some occasions he took away great quantities of blood, as appears from what we have already observed. Sometimes he continued the bleeding till the patient fainted: at other times he would bleed in both arms at once; at others, he did it in several places of the body, and at several times. The veins he opened were those of the arm, the hands, the ankles on both sides, the hams, the forehead, behind the head, the tongue, the nose, behind the ears, under the breasts, and those of the arms; besides which, he burnt others,

and opened several arteries. He likewise used cupping-vessels; with intent to recal or withdraw the humours which fell upon any part. Sometimes he contented himself with the bare attraction made by the cupping-vessels, but sometimes also he made scarifications.

When bleeding and purging, which were the principal and most general means used by Hippocrates for taking off a plethora, proved insufficient for that purpose, he had recourse to diuretics and sudorifics. The former were of different sorts, according to the constitution of the persons: sometimes baths, and sometimes sweet wine, were employed to provoke urine; sometimes the nourishment which we take contributes to it: and amongst those herbs which are commonly eaten, Hippocrates recommends garlic, leeks, onions, cucumbers, melons, gourds, fennel, and all other things which have a biting taste and a strong smell. With these he numbers honey, mixed with water or vinegar, and all salt meats. But, on some occasions, he took four cantharides, and pulling off their wings and feet, gave them in wine and honey. These remedies were given in a great number of chronical disorders after purging, when he thought the blood was overcharged with a sort of moisture which he calls *ichor*; or in suppression of urine, and when it was made in less quantity than it ought. There were also some cases in which he would force sweat as well as urine; but he neither mentions the diseases in which sudorifics are proper, nor lets us know what medicines are to be used for this purpose, except in one single passage, where he mentions sweating, by pouring upon the head a great quantity of water till the feet sweat; that is, till the sweat diffuses itself over the whole body, running from head to foot. After this he would have them eat boiled meat, and drink pure wine, and being well covered with clothes, lay themselves down to rest. The disease for which he proposes the above-mentioned remedy is a fever; which is not, according to him, produced by bile or pituita, but by mere lassitude, or some other similar cause; from whence we may conclude, that he did not approve of sweating in any other kind of fever.

Other remedies which Hippocrates tells us he made use of, were those that purged neither bile nor phlegm, but act by cooling, drying, heating, moistening, or by closing and thickening, resolving and dissipating. These medicines, however, he does not particularly mention; and it is probable they were only some particular kinds of food. To these he joined *hypnotics*, or such things as procure sleep; but these last were used very seldom, and it is most probable, were only different preparations of poppies.

Lastly, besides the medicines already mentioned, which acted in a sensible manner, Hippocrates made use of others called *specifics*; whose action he did not understand, and for the use of which he could give no reason besides his own experience, or that of other physicians. These he had learned from his predecessors the descendants of *Æsculapius*, who, being *empirics*, did not trou-

ble themselves about inquiring into the operation of their remedies, provided their patients were cured.

Of the external remedies prescribed by Hippocrates, fomentations were the chief. These were of two kinds. The one was a sort of bath, in which the patient sat in a vessel full of a decoction of simples appropriated to his malady; so that the part affected was soaked in the decoction. This was chiefly used in affections of the womb, of the arms, the bladder, the reins, and generally all the parts below the diaphragm. The second way of fomenting was, to take warm water and put it in a skin or bladder, or even into a copper or earthen vessel, and to apply it to the part affected; as, for example, in a pleurisy. They used likewise a large sponge, which they dipped in the water, or other hot liquor, and squeezed out part of the liquor before they applied it. The same use they made of barley, vetches, or bran, which were boiled in some proper liquor, and applied in a linen bag. These are called *moist* fomentations. The dry ones were made of salt or millet, heated considerably, and applied to the part. Another kind of fomentation was the vapour of some hot liquor; an instance of which we find in his first book "Of Womens Distempers." He cast, at several times, bits of red-hot iron into urine, and, covering up the patient close, caused her to receive the steam below. His design in these kinds of fomentations was to warm the part, to resolve or dissipate, and draw out the peccant matter, to mollify and assuage pain, to open the passages, or even to shut them, according as the fomentations were emollient or astringent.

Fumigations were likewise very often used by Hippocrates. In the quinsy, he burned hyssop with sulphur and pitch, and caused the smoke to be drawn into the throat by a funnel; and by this means he brought away abundance of phlegm through the mouth and through the nose. For this purpose he took nitre, marjoram, and cress-seeds, which he boiled in water, vinegar, and oil, and, while it was on the fire caused the patient to draw in the steam by a pipe. In his works we find a great number of fumigants for the diseases of women, to promote the menstrual flux, to check it, to help conception, and to ease pains in the matrix, or the suffocation of it. On these occasions he used such aromatics as were then known, viz. cinnamon, cassia, myrrh, and several odoriferous plants; likewise some minerals, such as nitre, sulphur, and pitch, and caused them to receive the vapours through a funnel into the uterus.

Gargles, a kind of fomentations for the mouth, were also known to Hippocrates. In the quinsy he used a gargle made of marjoram, savory, celery, mint, and nitre, boiled with water and a little vinegar. When this was strained, they added honey to it, and washed their mouths frequently with it.

Oils and ointments were likewise much used by Hippocrates, with a view to mollify and abate pain, to ripen boils, resolve tumors, refresh after weariness, make the body supple, &c. For this purpose, sometimes pure oil of olives was used; sometimes certain simples were infused in it, as the leaves of myrtle and roses; and the latter kind of oil was in much request among the ancients. There were other sorts of oils sometimes in use, however, which were much more compounded. Hippocrates speaks of one called *susinum*, which was made of the flowers of the iris, of some aromatics, and of an ointment of narcissus made with the flowers of narcissus and aromatics infused in oil. But the most compounded of all his ointments was that called *netopum*, which he made particularly for women; and consisted, according to Hesychius, of a great number of ingredients. Another ointment, to which he gave the name of *ceratum*, was composed of oil and wax. An ointment which he recommends for the softening of a tumor, and the cleansing of a wound, was made by the following receipt: "Take the quantity of a nut of the marrow or fat of a sheep, of mastic or turpentine the quantity of a bean, and as much wax; melt these over a fire, with oil of roses, for a *ceratum*." Sometimes he added pitch and wax, and, with a sufficient quantity of oil, made a composition somewhat more consistent than the former, which he called *cerapissus*.

Cataplasms were a sort of remedies less consistent than the two former. They were made of powders or herbs steeped or boiled in water or some other liquor, to which sometimes they added oil. These were used with a view to soften or resolve tumors, ripen abscesses, &c. though they had also cooling cataplasms made of the leaves of beech or oak, fig or olive trees, boiled in water.

Lastly, to complete the catalogue of the external remedies used by Hippocrates, we shall mention a sort of medicine called *collyrium*. It was compounded of powders, to which was added a small quantity of some ointment, or juice of a plant, to make a solid or dry mass; the form of which was long and round, which was kept for use. Another composition of much the same nature was a sort of lozenge of the bigness of a small piece of money, which was burnt upon coals for a perfume, and powdered for particular uses. In his works we find likewise descriptions of powders for several uses, to take off fungous flesh, and to blow into the eyes in ophthalmies, &c.

These were almost all the medicines used by Hippocrates for external purposes. The compound medicines given inwardly were either liquid, solid, or lambative. The liquid ones were prepared either by decoction or infusion in a proper liquor, which, when strained, was kept for use; or by macerating certain powders in such liquors, and so taking them together, or by mixing different kinds of liquors together. The solid medicines consisted

of juices inspissated; of gums, resins, or powders, made up with them or with honey, or something proper to give the necessary consistence to the medicine. These were made up in a form and quantity fit to be swallowed with ease. The lambative was of a consistence between solid and fluid; and the patients were obliged to keep it for some time to dissolve in the mouth, that they might swallow it leisurely. This remedy was used to take off the acrimony of those humours which sometimes fall upon this part, and provoke coughing and other inconvenience. The basis of this last composition was honey. It is worth our observation, that the compound medicines of Hippocrates were but very few, and composed only of four or five ingredients at most; and that he not only understood pharmacy, or the art of compounding medicines, but prepared such as he used himself, or caused his servants to prepare them in his house by his directions.

We have thus given some account of the state of medicine as practised and taught by Hippocrates, who, as we have already observed, has for many ages been justly considered as the father of physic. For when we attend to the state in which he found medicine, and the condition in which he left it, we can hardly bestow sufficient admiration on the judgment and accuracy of his observations. After a life spent in unwearied industry, he is said to have died at Larissa, a city in Thessaly, in the 101st year of his age, 361 years before the birth of Christ.

After the days of Hippocrates, medicine in ancient Greece gradually derived improvement from the labour of other physicians of eminence. And we may particularly mention three to whom its future progress seems to have been not a little indebted, viz. Praxagoras, Erasistratus, and Herophilus.

The first physician of eminence who differed considerably in his practice from Hippocrates was PRAXAGORAS. Cælius Aurelianus acquaints us, that he made great use of vomits in his practice, insomuch as to exhibit them in the iliac passion till the excrements were discharged by the mouth. In this disorder he also advised, when all other means failed, to open the belly, cut the intestine, take out the indurated fæces, and then to sew up all again; but this practice has not probably been followed by any subsequent physician.

ERASISTRATUS was a physician of great eminence, and flourished in the time of Seleucus, one of the successors of Alexander the Great. According to Galen, he entirely banished venesection from medicine; though some affirm that he did not totally discard it, but only used it less frequently than other physicians. His reasons for disapproving of venesection are as follow: It is difficult to succeed in venesection, because we cannot always see the vein we intend to open, and because we are not sure but we may open an artery instead of a vein. We cannot ascertain the true quan-

tity to be taken. If we take too little, the intention is by no means answered: if we take too much, we run a risk of destroying the patient. The evacuation of the venous blood also is succeeded by that of the spirits, which on that occasion pass from the arteries into the veins. It must likewise be observed, that as the inflammation is formed in the arteries by the blood coagulated in their orifices, venesection must of course be useless and of no effect.

As Erasistratus did not approve of venesection, so neither did he of purgatives, excepting very rarely, but exhibited clysters and vomits; as did also his master Chrysippus. He was of opinion, however, that the clysters should be mild; and condemned the large quantity and acrid quality of those used by the ancients. The reason why purgatives were not much used by him was, that he imagined purging and venesection could answer no other purpose than diminishing the fulness of the vessels; and for this purpose he asserted that there were more effectual means than either phlebotomy or purging. He asserted that the humours discharged by cathartics were not the same in the body that they appeared after the discharge; but that the medicines changed their nature, and produced a kind of corruption in them. This opinion has since been embraced by a great number of physicians. He did not believe that purgatives acted by attraction; but substituted in the place of this principle what Mr. Le Clerc imagines to be the same with Aristotle's *fuga vacui*. The principal remedy substituted by him in place of purging and venesection was abstinence. When this, in conjunction with clysters and vomits, was not sufficient to eradicate the disease, he then had recourse to exercise. All this was done with a view to diminish the plenitude, which, according to him, was the most frequent cause of all diseases. Galen also informs us, that Erasistratus had so great an opinion of the virtues of succory in diseases of the viscera and lower belly, and especially in those of the liver, that he took particular pains to describe the method of boiling it, which was, to boil it in water till it was tender; then to put it into boiling water a second time, in order to destroy its bitterness; afterwards to take it out of the water, and preserve it in a vessel with oil; and, lastly, when it is to be used, add a little weak vinegar to it. Nay, so minute and circumstantial was Erasistratus with regard to the preparation of his favourite succory, that he gave orders to tie several of the plants together, because that was the more commodious method of boiling them. The rest of Erasistratus's medicines consisted almost entirely of regimen; to which he added some topical remedies, such as cataplasms, fomentations, and unguents. In short, as he could neither endure compounded medicines nor superstitious and fine-spun reasonings, he reduced medicine to a very simple and compendious art.

In some other respects, Erasistratus appears to have been very bold; and as an anatomist he is said to have been exceedingly cruel, insomuch that he is represented by some as having dissected criminals while yet alive. In a scirrhus liver, or in tumors of that organ, Coelius Aurelianus observes, that Erasistratus made an incision through the skin and integuments, and having opened the abdomen he applied medicines immediately to the part affected. But though he was thus bold in performing operations on the liver, yet he did not approve of the paracentesis or tapping in the dropsy; because (said he) the waters being evacuated, the liver, which is inflamed and become hard like a stone, is more pressed by the adjacent parts which the waters kept at a distance from it, so that by this means the patient dies. He declared also against drawing teeth which were not loose; and used to tell those who talked with him on this operation, that, in the temple of Apollo, there was to be seen an instrument of lead for drawing teeth; in order to insinuate, that we must not attempt the extirpation of any but such as are loose, and called for no greater force for their extirpation than what may be supposed in an instrument of lead.

HEROPHILUS, the disciple of Praxagoras, and contemporary of Erasistratus, followed a less simple practice: he made so great use of medicines both simple and compound, that neither he nor his disciples would undertake the cure of any disorder without them. He seems also to have been the first who treated accurately of the doctrine of pulses, of which Hippocrates had but a superficial knowledge. Galen, however, affirms, that on this subject he involved himself in difficulties, and advanced absurdities; which indeed we are not greatly to wonder at, considering the time in which he lived. He took notice of a disease at that time pretty rare, and to which he ascribes certain sudden deaths. He calls it a *palsy of the heart*; and perhaps it may be the same disease with what is now termed the *angina pectoris*.

According to Celsus, it was about this time that medicine was first divided into three branches, viz. the dietetic, the pharmaceutical, and the surgical medicine. The first of these employed a proper regimen in the cure of diseases; the second, medicines; and the third, the operation of the hands: and the same author informs us, that these three branches became now the business of as many distinct classes of men; so that from this time we may date the origin of the three professions of physicians, apothecaries, and surgeons.—Before this division, those called *physicians* discharged all the several offices belonging to the three professions; and there were only two kinds of them, viz. one called *αρχιτεκτονικοι*, who only gave their advice to the patients, and direction to those of an inferior class, who were called *δημιουργοι* and worked with their hands either in performing the operations, or in the composition and application of remedies.

The first grand revolution which happened in the medicinal art

after the days of Herophilus and Erasistratus was occasioned by the founding of the empiric sect by Serapion of Alexandria about 287 years before Christ. The division into dogmatists and empirics had indeed subsisted before; but about this time the latter party began to grow strong, and to have champions publicly asserting its cause. Galen inform us, that Serapion used Hippocrates very ill in his writings, in which he discovered an excess of pride, self-sufficiency, and contempt for all the physicians that went before him. We have some sketches of his practice in Cœlius Aurelianus, from which we may infer, that he retained the medicines of Hippocrates and the other physicians who went before him, though he rejected their reasoning. We know not what arguments he advanced for the support of his sentiments, since his works are lost, as well as those of the other empirics; and we should know nothing at all of any of them, if their adversaries had not quoted them in order to confute them.

The empirics admitted only one general method of obtaining skill in the medical art, which was by experience, called by the Greeks *εμπειρια*. From this word they took their name, and refused to be called after the founder or any champion of their sect. They defined experience a knowledge derived from the evidence of sense. It was either fortuitous, or acquired by design. For acquiring practical skill they recommended what they called *τηρησις*, or one's own observation, and the reading of histories or cases faithfully related by others. Hence they thought that we are enabled to know a disease by its resemblance to others; and, when new diseases occurred, to conclude what was proper to be done from the symptoms they had in common with others that were before known. They asserted, that observation ought principally to be employed in two different ways: first in discovering what things are salutary, and what are of an indifferent nature; and, secondly, what particular disease is produced by a certain concurrence of symptoms; for they did not call every symptom a disease, but only such a combination of them as from long experience they found to accompany each other, and produced such disorders as began and terminated in the same manner.

On the other hand, the dogmatist affirmed, that there was a necessity for knowing the latent as well as the evident causes of diseases, and that the physician ought to understand the natural actions and functions of the human body; which necessarily presupposes a knowledge of the internal parts. By secret or latent causes they meant such as related to the elements or principles of which our bodies are composed, and which are the origin of a good or bad state of health. They asserted that it was impossible to know how to cure a disease without knowing the cause whence it proceeded; because undoubtedly it behoved them to vary prodigiously in themselves according to the different causes by which they were produced.

The next remarkable person in the history of phyſic is ASCLEPIADES, who flouriſhed in the century immediately preceding the birth of Chriſt. He introduced the philoſophy of Democritus and Epicurus into medicine, and ridiculed the doctrines of Hippocrates. He aſſerted, that matter conſidered in itſelf was of an unchangeable nature; and that all perceptible bodies were compoſed of a number of ſmaller ones, between which there were interſperſed an infinity of ſmall ſpaces totally void of all matter. He thought that the ſoul itſelf was compoſed of theſe ſmall bodies. He laughed at the principle called *Nature* by Hippocrates, and alſo at the imaginary faculties ſaid by him to be ſubſervient to her; and ſtill more at what he called *Attraction*. This laſt principle Aſclepiades denied in every inſtance, even in that of the loadſtone and ſteel, imagining that this phenomenon proceeded from a concurrence of corpuscles, and a particular diſpoſition or modification of their pores. He alſo maintained, that nothing happened or was produced without ſome cauſe; and that what was called *nature* was in reality no more than *matter* and *motion*. From this laſt principle he inferred that Hippocrates knew not what he ſaid when he ſpoke of Nature as an intelligent being, and aſcribed qualities of different kinds to her. For the ſame reaſon he ridiculed the doctrine of Hippocrates with regard to criſes; and aſſerted that the termination of diſeaſes might be as well accounted for from mere matter and motion. He maintained, that we were deceived if we imagined that Nature always did good; ſince it was evident that ſhe often did a great deal of harm. As for the days particularly fixed upon by Hippocrates for criſes, or thoſe on which we uſually obſerve a change either for the better or the worſe, Aſclepiades denied that ſuch alterations happened on thoſe days rather than on others. Nay, he aſſerted that the criſis did not happen at any time of its own accord, or by the particular determination of nature for the cure of the diſorder, but that it depended rather on the addreſs and dexterity of the phyſician; that we ought never to wait till a diſorder terminates of its own accord, but that the phyſician, by his care and medicines, muſt haſten on and advance the cure.—According to him, Hippocrates and other ancient phyſicians attended their patients rather with a view to obſerve in what manner they died than in order to cure them; and this under pretence that Nature ought to do all herſelf, without any aſſiſtance.

According to Aſclepiades, the particular aſſemblage of the various corpuscles above mentioned, and repreſented as of different figures, is the reaſon why there are ſeveral pores or interſtices within the common maſs, formed by theſe corpuscles; and why theſe pores are of a different ſize. This being taken for granted, as theſe pores are in all the bodies we obſerve, it muſt of courſe follow, that the human body has ſome peculiar to itſelf, which, as well as thoſe of all other bodies, contain other minute bodies, which paſs and re-paſs by thoſe pores that communicate with each other; and as theſe

pores or interstices are larger or smaller, so the corpuscles which pass through them differ proportionably as to largeness and minuteness. The blood consists of the largest of these corpuscles, and the spirits; or the heat, of the smallest.

From these principles he infers, that as long as the corpuscles are freely received by the pores, the body remains in its natural state; and on the contrary, it begins to recede from that state when the corpuscles find any obstacle to their passage. Health therefore depends on the just proportion between the pores and the corpuscles they are destined to receive and transmit; as diseases, on the contrary, proceed from a disproportion between these pores and the corpuscles. The most usual obstacle on this occasion proceeds from the corpuscles embracing each other, and being retained in some of their ordinary passages, whether these corpuscles arrive in too large a number, are of irregular figures; move too fast or too slow, &c.

Among the disorders produced by the corpuscles stopping of their own accord, Asclepiades reckoned phrensies, lethargies, pleurisies, and burning fevers. Pains, in particular, are classed among the accidents which derive their origin from a stagnation of the largest of all the corpuscles of which the blood consists. Among the disorders produced by the bad state and disposition of the pores, he placed deliquiums, languors, extenuations, leanness, and dropsies. These last disorders he thought proceeded from the pores being too much relaxed and opened: the dropsy in particular, he thinks, proceeds from the flesh being perforated with various small holes, which convert the nourishment received into them into water. Hunger, and especially that species of it called *fames canina*, proceeds from an opening of the large pores of the stomach and belly; and thirst from an opening of their small ones. Upon the same principles, he accounted for intermittent fevers. Quotidian fevers are caused by retention of the largest corpuscles, those of the tertian kind by a retention of corpuscles somewhat smaller; and quartan fevers are produced by a retention of the smallest corpuscles of all.

The practice of Asclepiades was suited to remove these imaginary causes of disorders. He composed a book concerning common remedies, which he principally reduced to three, *viz.* gestation, friction, and the use of wine. By various exercises he proposed to render the pores more open, and to make the juices and small bodies, which cause diseases by their retention, pass more freely; and while the former physicians had not recourse to gestation till towards the end of long continued disorders, and when the patients, though entirely free from fever, were yet too weak to take sufficient exercise by walking, Asclepiades used gestation, from the very beginning of the most burning fevers. He laid it down as a maxim, that one fever was to be cured by another; that the strength of the patient was to be exhausted by making him watch and endure

thirst to such a degree, that, for the two first days of the disorder, he would not allow them to cool their mouths with a drop of water. Celsus also observes, that though Asclepiades treated his patients like a butcher during the first days of the disorder, he indulged them so far afterwards as even to give directions for making their beds in the softest manner. On several occasions Asclepiades used frictions to open the pores. The dropy was one of the diseases in which this remedy was used; but the most singular attempt was, by this means, to lull phrenetic patients asleep. But though he enjoined exercise so much to the sick, he denied it to those in health; a piece of conduct not a little surprising and extraordinary. He allowed wine freely to patients in fevers, provided the violence of the disorder was somewhat abated. Nor did he forbid it to those who were afflicted with the phrenzy: nay, he ordered them to drink it till they were intoxicated, pretending by that means to make them sleep; because, he said, wine had a narcotic quality and procured sleep, which he thought absolutely necessary for those who laboured under that disorder. To lethargic patients he used it on purpose to excite them, and rouse their senses: he also made them smell strong-scented substances, such as vinegar, castor, and rue, in order to make them sneeze; and applied to their heads cataplasms of mustard made up with vinegar.

Besides these remedies, Asclepiades enjoined his patients abstinence to an extreme degree. For the first three days, according to Celsus, he allowed them no aliment whatever; but on the fourth began to give them victuals. According to Cælius Aurelianus, however, he began to nourish his patients as soon as the accession of the disease was diminished, not waiting for an entire remission; giving to some aliments on the first, to others on the second, to others on the third, and so on to the seventh day. It seems almost incredible to us, that people should be able to fast till this last-mentioned term; but Celsus assures us, that abstinence till the seventh day was enjoined by the predecessors of Asclepiades, and by Heraclides Tarentinus.

The next great revolution which happened in the medicinal art, was brought about by THEMISON, the disciple of Asclepiades, who lived not long before the time of Celsus, during the end of the reign of Augustus, or beginning of that of Tiberius. The sect founded by him was called *methodic*, because he endeavoured to find a method of rendering medicine more easy than formerly,

He maintained, that a knowledge of the causes of diseases was not necessary, provided we have a due regard to what diseases have in common and analogous to one another. In consequence of this principle, he divided all diseases into two, or at most three, kinds. The first included diseases arising from stricture; the second, those arising from relaxation; and the third, those of a mixed nature, or such as partook both of stricture and relaxation.

Themison also asserted, that diseases are sometimes acute, and sometimes chronical; that for a certain time they increase; that at a certain time they are at their height; and that at last they were observed to diminish. Acute diseases, therefore, according to him, must be treated in one way, and chronical ones in another; one method must be followed with such as are in their augmentation, another with such as are at their height, and a third with such as are in their declension. He asserted, that the whole of medicine consisted in the observation of that small number of rules which are founded upon things altogether evident. He said, that all disorders, whatever their nature was, if included under any of the kinds above mentioned, ought to be treated precisely in the same way, in whatever country and with whatever symptoms they happen to arise. Upon these principles, he defined medicine to be a method of conducting to the knowledge of what diseases have in common with each other, and which at the same time is evident.

Themison was old when he laid the foundation of the Methodic sect; and it was only brought to perfection by THESSALUS, who lived under the emperor Nero. Galen and Pliny accuse this physician of intolerable insolence and pride, and report that he gave himself the air of despising all other physicians; and so intolerable was his vanity, that he assumed the title of *the Conqueror of Physicians*, which he caused to be put upon his tomb in the Appian-way. Never was mountebank (says Pliny) attended by a greater number of spectators than Thessalus had generally about him; and this circumstance is the less to be wondered at, if we consider that he promised to teach the whole art of medicine in less than six months. In reality, the art might be learned much sooner if it comprehended no more than what the methodists thought necessary: for they cut off the examination of the causes of diseases followed by the dogmatics; and substituted in the room of the laborious observations of the empirics, indications drawn from the analogy of diseases, and the mutual resemblance they bear to each other. The most skilful of all the methodic sect, and he who put the last hand to it, was SORANUS. He lived under the emperors Trajan and Adrian, and was a native of Ephesus.

One of the most celebrated medical writers of antiquity was CELSUS, whom we have already had occasion to mention. Most writers agree that he lived in the time of Tiberius, but his country is uncertain. It is even disputed whether or not he was a professed physician. Certain it is, however, that his books on medicine are the most valuable of all the ancients next to those of Hippocrates. From the latter, indeed, he has taken so much, as to acquire the name of the *Latin Hippocrates*; but he has not attached himself to him so closely as to reject the assistance of other authors. In many particulars he has preferred Asclepiades. With him he laughs at

the critical days of Hippocrates, and ascribes the invention of them to a foolish and superstitious attachment to the Pythagorean doctrine of numbers. He also rejected the doctrine of Hippocrates with regard to venesection, of which he made a much more general use; but did not take away so much at a time, thinking it much better to repeat the operation than weaken the patient by too great an evacuation at one time. He used cupping also much more frequently, and differed from him with regard to purgatives. In the beginning of disorders, he said, the patients ought to endure hunger and thirst; but afterwards they were to be nourished with good aliments; of which, however, they were not to take too much, nor fill themselves all of a sudden, after having fasted. He does not specify how long the patient ought to practise abstinence; but affirms, that in this particular it is necessary to have a regard to the disease, the patient, the season, the climate, and other circumstances of a like nature. The signs drawn from the pulse he looked on to be very precarious and uncertain. "Some (says he) lay great stress upon the beating of the veins or the arteries; which is a deceitful circumstance, since that beating is slow or quick, and varies very much, according to the age, sex, and constitution, of the patient. It even sometimes happens that the pulse is weak and languid when the stomach is disordered, or in the beginning of a fever, though in other respects the body be in a good state: so that we might, in this latter case, be induced to believe that a man is very weak, when he is just entering into a violent paroxysm, has strength enough left, and may be easily recovered from it. On the contrary, the pulse is often high, and in a violent commotion, when one has been exposed to the sun, or comes out of a bath, or from using exercise; or when one is under the influence of anger, fear, or any other passion. Besides, the pulse is easily changed by the arrival of the physician, in consequence of the patient's anxiety to know what judgment he will pass upon his case. To prevent this, the physician must not feel the patient's pulse on his first arrival: he must first sit down by him, assume a chearful air, inform himself of his condition; and if he is under any dread, endeavour to remove it by encouraging discourse: after which he may examine the beating of the artery. This nevertheless does not hinder us from concluding, that if the sight of the physician alone can produce so remarkable a change in the pulse, a thousand other causes may produce the same effect." But although Celsus thought for himself, and in not a few particulars differed from his predecessors, yet in his writings, which are not only still preserved, but have gone through almost innumerable editions, we have a compendious view of the practice of almost all his predecessors: and he treats of the healing art in all its branches, whether performed *manu, victu, vel medicamentis*. His writings, therefore, will naturally be had recourse to by every one who wishes either to become acquainted with the practice of the ancients prior to the fall

of the Roman empire, or to read medical Latin in its greatest purity.

About the 131st year after Christ, in the reign of the emperor Adrian, lived the celebrated GALEN, a native of Pergamus, whose name makes such a conspicuous figure in the history of physic. At this time the dogmatic, empiric, methodic, and other sects, had each their abettors. The methodics were held in great esteem, and looked upon to be superior to the dogmatics, who were strangely divided among themselves, some of them following Hippocrates, others Erasistratus, and others Asclepiades. The empirics made the least considerable figure of any. Galen undertook the reformation of medicine, and restored dogmatism. He seems to have been of that sect which was called *eclectic*, from their choosing out of different authors what they esteemed good in them, without being particularly attached to any one more than the rest. This declaration he indeed sets out with; but, notwithstanding this, he follows Hippocrates much more than any of the rest, or rather follows nobody else but him. Though before his time several physicians had commented on the works of Hippocrates, yet Galen pretends that none of them had understood his meaning. His first attempt therefore was to explain the works of Hippocrates; with which view he wrote a great deal, and after this set about composing a system of his own. In one of his books entitled, "Of the establishment of medicine," he defines the art to be one which teaches to preserve health and cure diseases. In another book, however, he proposes the following definition: "Medicine (says he) is a science which teaches what is sound, and what is not so; and what is of an indifferent nature, or holds a medium between what is sound and what is the reverse." He affirmed, that there are three things which constitute the object of medicine, and which the physician ought to consider as sound, as not sound, or of a neutral and indifferent nature. These are the body itself, the signs, and the causes. He esteems the human body sound, when it is in a good state or habit with regard to the simple parts of which it is composed, and when besides there is a just proportion between the organs formed of these simple parts. On the contrary, the body is reckoned to be unsound, when it recedes from this state, and the just proportion above mentioned. It is in a state of neutrality or indifference, when it is in a medium between soundness and its opposite state. The salutary signs are such as indicate present health, and prognosticate that the man may remain in that state for some time to come. The insalubrious signs, on the contrary, indicate a present disorder, or lay a foundation for suspecting the approach of one. The neutral signs, or such as are of an indifferent nature, denote neither health nor indisposition, either for the present, or for the time to come. In like manner he speaks of causes salutary, unsalutary, and indifferent.

These three dispositions of the human body, that is, soundness, its reverse, and a neutral state, comprehend all the differences between health and disorder or indisposition: and each of these three states or dispositions has a certain extent peculiar to itself. A sound habit of body, according to the definition of it already given, is very rare, and perhaps never to be met with; but this does not hinder us to suppose such a model for regulating our judgment with respect to different constitutions. On this principle Galen establishes eight other principal constitutions, all of which differ more or less from the perfect model above mentioned. The four first are such as have one of the four qualities of hot, cold, moist, or dry, prevailing in too great a degree; and accordingly receive their denomination from that quality which prevails over the rest. The four other species of constitutions receive their denominations from a combination of the abovementioned: so that according to his definition, there may be a hot and dry, a hot and moist, a cold and moist, and a cold and dry constitution. Besides these differences, there are certain others which result from occult and latent causes, and which, by Galen, are said to arise from an *idiosyncrasy* of constitution. It is owing to this idiosyncrasy that some have an aversion to one kind of aliment and some to another: that some cannot endure particular smells, &c. But though these eight last-mentioned constitutions fall short of the perfection of the first, it does not thence follow that those to whom they belong are to be classed among the valetudinary and diseased. A disease only begins when the deviation becomes so great as to hinder the action of the parts.

Galen describes at great length the signs of a good or bad constitution, as well as those of what he calls a *neutral habit*. These signs are drawn from the original qualities of cold, hot, moist, and dry, and from their just proportion or disproportion with respect to the bulk, figure, and situation, of the organical parts. With Hippocrates he establishes three principles of an animal body; the parts, the humours, and the spirits. By the parts he properly meant no more than the solid parts: and these he divided into similar and organical. Like Hippocrates, he also acknowledged four humours; the blood, the phlegm, the yellow bile, and black bile. He established three different kinds of spirits; the vital, the animal, and the natural. The first of these are, according to him, nothing else but a subtle vapour arising from the blood, which draws its origin from the liver, the organ or instrument of sanguification. After these spirits are conveyed to the heart, they, in conjunction with the air we draw into the lungs, become the matter of the second species, that is, of the vital spirits, which are again changed into those of the animal kind in the brain. He supposed that these three species of spirits served as instruments to three kinds of faculties, which reside in the respective parts where these faculties are formed. The natural faculty is the first of these, which he placed in the liver, and imagined to preside over the nutrition,

growth, and generation, of the animal. The vital faculty he lodged in the heart, and supposed that by means of the arteries it communicated warmth and life to all the body. The animal faculty, the noblest of all the three, and with which the reasoning or governing faculty was joined, according to him, has its seat in the brain; and, by means of the nerves, distributes a power of motion and sensation to all the parts, and presides over all the other faculties. The original source or principle of motion in all these faculties, Galen, as well as Hippocrates, defines to be *Nature*.

Upon these principles Galen defined a disease to be "such a preternatural disposition or affection of the parts of the body, as primarily, and of itself, hinders their natural and proper action." He established three principal kinds of diseases: the first relates to the similar parts; the second, to the organical; and the third is common to both these parts. The first kind of diseases consists in the intemperature of the similar parts; and this is divided into an intemperature *without matter*, and an intemperature *with matter*. The first discovers itself when a part has more or less heat or cold than it ought to have, without that change of quality in the part being supported and maintained by any matter. Thus, for instance, a person's head may be overheated and indisposed by being exposed to the heat of the sun, without that heat being maintained by the continuance of congestion of any hot humour in the part. The second sort of intemperature is when any part is not only rendered hot or cold, but also filled with a hot or cold humour, which are the causes of the heat or cold felt in the part. Galen also acknowledged a simple intemperature: that is, when one of the original qualities, such as heat or cold, exceeds alone and separately; and a compound intemperature, when two qualities are joined together, such as heat and dryness, or coldness and humidity. He also established an equal and unequal temperature. The former is that which is equally in all the body, or in any particular part of it, and which creates no pain, because it is become habitual, such as dryness in the hectic constitution. The latter is distinguished from the former, in that it does not equally subsist in the whole of the body, or in the whole of a part. Of this kind of intemperature we have examples in certain fevers, where heat and cold, equally, and almost at the same time, attack the same part; or in other fevers, which render the surface of the body cold as ice, while the internal parts burn with heat; or lastly, in cases where the stomach is cold and the liver hot.

The second kind of disorders, relating to the organical parts, results from irregularities of these parts, with respect to the number, bulk, figure, situation, &c.; as when one has six fingers, or only four; when one has any part larger or smaller than it ought to be, &c. The third kind, which is common both to the similar

and the original parts, is a solution of continuity, which happens when any similar or compound part is cut, bruised, or corroded.

Like Hippocrates, Galen distinguished diseases into acute and chronical; and, with respect to their nature and genus, into benign and malignant; also into epidemic, endemic, and sporadic.

After having distinguished the kinds of diseases, Galen comes to explain the causes; which he divides into external and internal.

The external causes of diseases, according to him, are six things, which contribute to the preservation of health when they are well disposed and properly used, but produce a contrary effect when they are imprudently used or ill disposed. These six things are, the air,

aliments and drink, motion and rest, sleeping and watching, retention and excretion, and lastly the passions. All these are called the

procatartetic or *beginning* causes, because they put in motion the internal causes; which are of two kinds, the *antecedent* and the *conjunct*. The former is discovered only by reasoning; and consists

for the most part in a peccancy of the humours, either by plenitude or cacochymy, *i. e.* a bad state of them. When the humours

are in too large a quantity, the case is called a *plethora*; but we must observe, that this word equally denotes too large a quantity

of all the humours together, or a redundance of one particular humour which prevails over the rest. According to these principles,

there may be a sanguine, a bilious, a pituitous, or a melancholy plenitude: but there is this difference between the sanguine

and the three other plenitudes, that the blood, which is the matter of the former, may far surpass the rest: whereas, if any of the

three last-mentioned ones do so, the case is no longer called *plenitude*, but *cacochymy*; because these humours, abounding more than

they ought, corrupt the blood. The causes he also divides into such as are manifest and evident, and such as are latent and obscure.

The first are such as spontaneously come under the cognizance of our senses when they act or produce their effects: the second are

not of themselves perceptible, but may be discovered by reasoning: the third sort, *i. e.* such as he calls *occult* or *concealed*, cannot be

discovered at all. Among this last he places the cause of the hydrophobia.

He next proceeds to consider the symptoms of diseases. A symptom he defines to be "a preternatural affection depending upon

a disease, or which follows it as a shadow does a body." He acknowledged three kinds of symptoms: the first and most considerable of these consisted in the action of the parts being injured

or hindered; the second in a change of the quality of the parts, their actions in the mean time remaining entire; the third related

to defects in point of excretion and retention.

After having treated of symptoms, Galen treats of the *signs* of diseases. These are divided into *diagnostic* and *prognostic*. The first

are so called because they enable us to know diseases, and distinguish

hem from each other. They are of two sorts, *pathognomonic* and *adjunct*. The first are peculiar to every disease, make known its precise species, and always accompany it, so that they begin and end with it. The second are common to several diseases, and only serve to point out the difference between diseases of the same species. In a pleurisy, for instance, the pathognomonic signs are a cough, a difficulty of breathing, a pain of the side, and a continued fever; the adjunct signs are the various sorts of matter expectorated, which are sometimes bloody, sometimes bilious, &c.—The diagnostic signs were drawn from the defective or disordered dispositions of the parts, or from the diseases themselves; secondly, from the causes of diseases; thirdly, from their symptoms; and lastly, from the particular dispositions of each body, from things which prove prejudicial and those that do service, and from epidemical diseases.—The prognostic signs he gathered from the species, virulence, and peculiar genus of the disease: but as we have already spoken so largely concerning the prognostics of Hippocrates, it is superfluous to be particular on those of Galen.—His method of cure differed little from that of Hippocrates: but from the specimen already given of Galen's method of teaching the medical art, it is evident that his system was little else than a collection of speculations, distinctions, and reasonings; whereas that of Hippocrates was founded immediately upon facts, which he had either observed himself, or had learned from the observation of others.

The system of Galen, however, notwithstanding its defects and absurdities, remained almost uncontradicted for a very long period. Indeed it may be considered as having been the prevailing system till the inundation of the Goths and Vandals put an almost entire stop to the cultivation of letters in Europe. But during the general prevalence of the system of Galen, there appeared some writers to whom medicine was indebted for improvements, at least in certain particulars. Among the most distinguished of these we may mention Oribasius, Aetius, Alexander, and Paulus.

ORIBASIUS flourished about the year 360, and was physician to the emperor Julian. He speaks very fully of the effects of bleeding by way of scarification, a thing little taken notice of by former writers; from his own experience he assures us that he had found it successful in a suppression of the menses, distensions of the eyes, headach, and straitness of breathing even when the person was extremely old. He tells his own case particularly, when the plague raged in Asia, and he himself was taken ill, that the second day he scarified his leg, and took away two pounds of blood; by which means he entirely recovered, as did several others who used it. In this author also we find the first description of a surprising and terrible distemper, which he termed *λυκα θριωπα*, a species of melancholy and madness, which he describes thus. "The persons affected get out of their houses in the night-time, and in every

thing imitate wolves, and wander among the sepulchres of the dead till day-break. You may know them by these symptoms: Their looks are pale; their eyes heavy, hollow, dry, without the least moisture of a tear; their tongue exceedingly parched and dry, no spittle in their mouth, extreme thirst; their legs, from the falls and the bruises they receive, full of incurable sores and ulcers."

ÆTIUS lived very near the end of the fifth, or in the beginning of the sixth century. Many passages in his writings serve to show us how much the actual and potential cautery were used by the physicians of that age. In a palsy, he says, that he should not at all hesitate to make an eschar either way, and this in several places; one in the nape, where the spinal marrow takes its rise, two on each side of it; three or four on the top of the head, one just in the middle, and three others round it. He adds, that in this case, if the ulcers continue running a good while, he should not doubt of a perfect recovery. He is still more particular when he comes to order this application for an inveterate asthma, after all other remedies have been tried in vain. One, he says, should be made on each side near the middle of the joining of the clavicle, taking care not touch the wind-pipe: two other little ones are then to be made near the carotids under the chin, one on each side, so that the caustic may penetrate no further than the skin; two others under the breasts, between the third and fourth ribs; and again, two more backwards towards the fifth and sixth ribs. Besides these there ought to be one in the middle of the thorax, near the beginning of the xiphoid cartilage over the orifice of the stomach; one on each side between the eighth and ninth ribs; and three others in the back, one in the middle, and the two others just below it, on each side of the vertebræ. Those below the neck ought to be pretty large, not very superficial, nor very deep: and all these ulcers should be kept open for a very long time.

Ætius takes notice of the worms bred in different parts of the body called *dracunculi*, which were unknown to Galen. He seems also to be the first Greek writer, among the Christians, who gives us any specimen of medicinal spells and charms; such as that of a finger of St. Blasius for removing a bone which sticks in the throat, and another in relation to a fistula. He gives a remedy for the gout, which he calls the *grand drier*; the patient is to use it for a whole year, and observe the following diet each month. "In September, he must eat and drink milk; in October, he must eat garlic; in November, abstain from bathing; in December, he must eat no cabbage; in January, he is to take a glass of pure wine in the morning; in February, to eat no beet; in March, to mix sweet things both in eatables and drinkables; in April, not to eat horse-radish; nor in May the fish called *polypus*; in June, he is to drink cold water in a morning; in July, to avoid venery; and lastly, in August, to eat no mallows." This may sufficiently show the

quackery of those times, and how superstition was beginning to mix itself with the art.

ALEXANDER, who flourished in the reign of Justinian, is a more original author than either of the two former. He confines himself directly to the describing the signs of diseases, and the methods of cure, without meddling with anatomy, the *materia medica*, or surgery, as all the others did. He employs a whole book in treating of the gout. One method he takes of relieving this disease is by purging; and in most of the purges he recommends hermodactyls, of which he has a great opinion. In a caufus, or burning fever, where the bile is predominant, the matter fit for evacuation, and the fever not violent, he prefers purging to bleeding, and says that he has often ordered purging in acute fevers with surprising success. In the caufus also, if a syncope happens from crude and redundant humours, he recommends bleeding. In a syncope succeeding the suppression of any usual evacuation, he recommends bleeding, with frictions. The diagnostics upon which he founds this practice are the following: viz. a face paler and more swelled than usual, a bloated habit of body, with a little sluggish pulse, having long intervals between the strokes. In tertian, and much more in quartan fevers, he recommends vomits above all other remedies, and affirms that by this remedy alone he has cured the most inveterate quartans. On the bulimus, or canine appetite, he makes a new observation, viz. that it is sometimes caused by worms. He mentions the case of a woman who laboured under this ravenous appetite, and had a perpetual gnawing at her stomach and pain in her head: after taking *hiera*, she voided a worm above a dozen of cubits long, and was entirely cured of her complaints.—He is also the first author who takes notice of *rhubarb*; which he recommends in a weakness of the liver and dysentery.—Alexander is recommended by Dr. Freind as one of the best practical writers among the ancients, and well worthy the perusal of any modern.

PAULUS was born in the island *Ægina*, and lived in the 7th century. He transcribes a great deal from Alexander and other physicians. His descriptions are short and accurate. He treats particularly of women's disorders; and seems to be the first instance upon record of a professed *man-midwife*, for so he was called by the Arabians: and accordingly he begins his book with the disorders incident to pregnant women. He treats also very fully of surgery; and gives some directions, according to Dr. Freind, not to be found in the more ancient writers.

After the downfall of the Roman empire, and when the inundation of Goths and Vandals had almost completely exterminated literature of every kind in Europe, medicine, though a practical art, shared the same fate with more abstract sciences. Learning in general, banished from the seat of arms, took refuge among the eastern nations, where the arts of peace still continued to be

cultivated. To the Arabian physicians, as they have been called, we are indebted both for the preservation of medical science, as it subsisted among the Greeks and Romans, and likewise for the description of some new diseases, particularly the small-pox. Among the most eminent of the Arabians, we may mention Rhazes, Avicenna, Albucasis, and Avenzoar. But of their writings it would be tedious, and is unnecessary, to give any particular account.—They were for the most part, indeed, only copiers of the Greeks; we are, however, indebted to them for some improvements. They were the first who introduced chemical remedies, though of these they used but few, nor did they make any considerable progress in the chemical art. Anatomy was not in the least improved by them, nor did surgery receive any advancement till the time of Albucasis, who lived probably in the 12th century. They added a great deal to botany and the materia medica, by the introduction of new drugs, of the aromatic kind especially, from the east, many of which are of considerable use. They also found out the way of making sugar; and by help of that, syrups; which two new materials are of great use in mixing up compound medicines.

With regard to their practice, in some few particulars they deviated from the Greeks. Their purging medicines were much milder than those formerly in use; and even when they did prescribe the old ones, they gave them in a much less dose than formerly. The same reflection may be made concerning their manner of bleeding, which was never to that excessive degree practised by the Greeks. They deviated from Hippocrates, however, in one very trivial circumstance, which produced a violent controversy. The question was, Whether blood in a pleurisy ought to be drawn from the arm of the affected side or the opposite? Hippocrates had directed it to be drawn from the arm of the affected side; but the Arabians, following some other ancient physicians, ordered it to be drawn from the opposite one. Such was the ignorance of those ages, that the university of Salamanca, in Spain, made a decree, that no one should dare to let blood but in the contrary arm; and endeavoured to procure an edict from the emperor Charles V. to second it; alleging that the other method was of no less pernicious consequence to medicine, than Luther's heresy had been to religion.

In consequence of the general decay of learning in the western parts of the world, the Greek writers became totally forgot, because nobody could read the language; and the Arabians, though mostly copiers from them, enjoyed all the reputation that was due to the others. The Arabian physic was introduced into Europe very early, with the most extravagant applause: and not only this, but other branches of their learning, came into repute in the west; insomuch that in the 11th century, the studies of natural philo-

sophy and the liberal arts were called *the studies of the Saracens*. This was owing partly to the crusades undertaken against them by the European princes ; and partly to the settlement of the Moors in Spain, and the intercourse they and other Arabians had with the Italians. For, long before the time of the crusades, probably in the middle of the 7th century, there were Hebrew, Arabic, and Latin professors of physic settled at Salernum : which place soon grew into such credit, that Charles the Great thought proper to found a college there in the year 802 ; the only one at that time in Europe. Constantine the African flourished here towards the latter end of the 11th century. He was a native of Carthage ; but travelled into the east, and spent 30 years in Babylon and Bagdad, by which means he became master of the oriental languages and learning. He returned to Carthage : but being informed of an attempt against his life, made his escape into Apulia, where he was recommended to Robert Guiscard, created in 1060 duke of that country, who made him his secretary. He was reputed to be very well versed in the Greek, as well as the eastern tongues ; and seems to have been the first who introduced either the Greek or Arabian physic into Italy. His works, however, contain nothing that is new, or material ; though he was then counted a very learned man, and for that age no doubt was so.

From this time to the end of the 15th and beginning of the 16th century, the history of physic furnishes us with no interesting particulars. This period, however, is famous for the introduction of chemistry into medicine, and the description of three new diseases, the sweating-sickness, the venereal disease, and the scurvy. The sweating-sickness began in 1483, in the army of Henry VII. upon his landing at Milford-haven, and spread itself at London from the 21st of September to the end of October. It returned here five times, and always in summer ; first in 1485, then in 1506, afterwards in 1517, when it was so violent that it killed many in the space of three hours, so that numbers of the nobility died, and of the commonalty in several towns often the one-half perished. It appeared the fourth time in 1528, and then proved mortal in six hours ; many of the courtiers died of it, and Henry VIII. himself was in danger. In 1529, and only then, it infested the Netherlands and Germany, in which last country it did much mischief. The last return of it was in 1551, and in Westminster it carried off 120 in a day. Dr. Caius describes it as a pestilent contagious fever, of the duration of one natural day ; the sweat he reckoned to be only a natural symptom, or crisis of the distemper. It first affected some particular part, attended with inward heat and burning, unquenchable thirst, restlessness, sickness at stomach, but seldom vomiting, headach, delirium, then faintness, and excessive drowsiness. The pulse was quick and vehement, and the breath short and laborious.—Children, poor and old people, were less

subject to it. Of others, scarce any escaped the attack, and most of them died. Even by travelling into France or Flanders they did not escape; and what is still more strange, the Scots were said not to be affected: abroad the English only were seized, and foreigners in England were free. At first the physicians were much puzzled how to treat this disease. The only cure they ever found, however, was to carry on the sweat for a long time; for, if stopped, it was dangerous or fatal. The way, therefore, was for the patient to lie still, and not expose himself to cold. If Nature was not strong enough to force out the sweat, it was necessary to assist her, by art with clothes, wine, &c. The violence of the distemper was over in 15 hours; but there was no security for the patient till 24 were passed. In some strong constitutions there was a necessity to repeat the sweating, even to 12 times. The removing out of bed was attended with great danger; some who had not sweated enough fell into very bad fevers.—No flesh-meat was to be allowed in all the time of the distemper; nor drink for the first five hours. In the seventh, the distemper increased; in the ninth the delirium came on, and sleep was by all means to be avoided. However terrible this disorder appeared at first, it seldom proved obstinate, if treated in the above-mentioned manner.

In the beginning of the 16th century, the famous chemist Paracelsus introduced a new system into medicine, founded on the principles of his art. The Galenical system had prevailed till his time, but the practice had greatly degenerated, and was become quite trifling and frivolous. The physicians rejected the use of opium, mercury, and other efficacious remedies. Paracelsus, who made use of these, had therefore greatly the advantage over them; and now all things relating to medicine were explained on imaginary chemical principles. It will easily be conceived that a practice founded in this manner could be no other than the most dangerous quackery. At this time, however, it was necessary; for now a new disease over-ran the world, and threatened greater destruction than almost all the old ones put together, both by the violence of its symptoms, and its baffling the most powerful remedies at that time known.—This was the venereal disease, which is said to have been imported from the West Indies by the companions of Christopher Columbus. Its first remarkable appearance was at the siege of Naples in 1494, from whence it was soon after propagated through Europe, Asia, and Africa. The symptoms with which it made the attack at that time were exceedingly violent, much more so than they are at present; and consequently were utterly unconquerable by the Galenists. The quacks and chemists, who boldly ventured on mercury, though they no doubt destroyed numbers by their excessive use of it, yet showed that a remedy for this terrible distemper was at last found out, and that a proper method of treating it might soon be fallen upon. Shortly after the West-

Indian specific guaiacum was discovered: the materia medica was enriched with that and many other valuable medicines, both from the East and West Indies: which contributed considerably to the improvement of the practice of physic. At this period, as if a voyage of considerable duration became more frequent, the scurvy became a more frequent disorder, and was of course more accurately described. But, probably, from supposed analogy to the contagions which at that time were new in Europe, very erroneous ideas were entertained with regard to its being of an infectious nature: and it is not impossible, that, from its being attended also with ulcers, it was on some occasions confounded with syphilitic complaints.

The revival of learning, which now took place throughout Europe, the appearance of these new diseases, and the natural fondness of mankind for novelty, contributed greatly to promote the advancement of medicine as well as of other sciences. While, at the same time, the introduction of the art of printing rendered the communication of new opinions as well as new practices so easy a matter, that to enumerate even the names of those who have been justly rendered eminent for medical knowledge would be a very tedious task. It was not, however, till 1628 that the great Dr. William Harvey demonstrated and communicated to the public one of the most important discoveries respecting the animal economy, the circulation of the blood. This discovery, more effectually than any reasoning, overturned all the systems which had subsisted prior to that time. It may justly be reckoned the most important discovery that has hitherto been made in the healing art: for there can be no doubt that it puts the explanation of the phenomena of the animal body, both in a state of health and disease, on a more solid and rational footing than formerly. It has not, however, prevented the rise of numerous fanciful and absurd systems. These, though fashionable for a short time, and strenuously supported by blind adherents, have yet in no long period fallen into deserved contempt. And notwithstanding the abilities and industry of Stahl, Hoffman, Boerhaave, and Cullen, we may easily venture to assert, that no general system has yet been proposed which is not liable to innumerable and unsurmountable objections. Very great progress has indeed been made in explaining the philosophy of the human body, from ascertaining by decisive experiment the influence of the circulating, the nervous, and the lymphatic systems in the animal economy. But every attempt hitherto made to establish any general theory in medicine, that is to conduct the cure of every disease on a few general principles, has equally deviated from truth with those of Hippocrates and Galen; and has equally tended to mislead those who have adopted it. Indeed we may with confidence venture to assert, that from the very nature of the subject itself, medicine does not admit of such simplicity. No one can deny that

the human body consists of a very great number of different parts, both solids and fluids. It is, however, equally certain, that each of these is from many different causes liable to deviations from the sound state. And although some slight changes may take place without what can be called a morbid affection, yet we well know, that every change taking place to a certain degree in any one part will necessarily and unavoidably produce an affection of the whole. Hence we may without hesitation venture to affirm, that every general theory which can be proposed, attempting to explain the phenomena, and conduct the cure, of all diseases on a few general principles, though for some time it may have strenuous advocates, will yet in the end be found to be both ill-grounded and pernicious.

The art of medicine has been much more usefully improved by careful attention to the history, theory, and practice, of particular diseases, and by endeavouring to ascertain from cautious observation the symptoms by which they are to be distinguished, the causes by which they are induced, and the means by which they are to be prevented, alleviated, or cured. On this footing, presently, we shall endeavour to give a brief account of at least the most important affections to which the human body is subjected, delivering what appear to us to be the best established facts and observations respecting each.

It cannot but be obvious to the reader, that the History of Medicine might yet farther be adorned with the addition of some illustrious names who have figured in *latter times*; but as circumstances on which their celebrity is founded are almost universally known and acknowledged, and as the detail must necessarily be carried to an inconvenient length, we shall content ourselves with adding in this place, what, however, it must be allowed, is no unsuitable appendage, to wit, an account of the MEDICAL SCHOOL at EDINBURGH.

As this school has now attained a degree of celebrity scarcely equalled, and certainly not surpassed, by any similar seminary in Europe, some account of those meritorious individuals whose genius and industry have been so successful in diffusing so extensively its well-earned fame, may not be regarded as unworthy of a place in this work.

The first founder of the Medical School of this city was certainly the late excellent Dr. Alexander Monro, a man whose great modesty, humanity, indefatigable industry, and high professional talents, excited the love and admiration of his contemporaries; and whose works exhibit such profound researches, important discoveries, and great practical utility, as must endear his memory to the present and to every future generation.

Dr. Alexander Monro was born in London, on the 8th of September, O.S. 1697. His father, Mr. John Monro, was

an eminent surgeon, and served in the army in that capacity. Soon after the birth of his son he retired from the army, and fixed the scene of his residence in Edinburgh, where his professional skill, his active industry, and his conciliating deportment, soon established him in extensive practice. But although much occupied in the line of his profession, he devoted a great share of his attention to the education of his son, whose dawning genius he soon observed, and with pleasure superintended. At this period Edinburgh afforded few opportunities for medical improvement, and Mr. Monro, who was well acquainted with this defect, and anxious to remove it, fondly hoped that that spirit of diligence and investigation, which actuated his son even from his infancy, if judiciously directed, and furnished with the proper means of improvement, might in time capacitate him to impart that knowledge which was then so great a desideratum.

Young Monro, distinguished by active genius, and by great industry, soon acquired every branch of literature at that time taught in the University of Edinburgh; and having early resolved upon the profession of medicine, we may suppose him to have been initiated in the preliminaries of that science under the tuition of his father, a man well qualified to direct him, and deeply interested in his success. Farther, however, in the career of improvement he could not then advance; for, at this period, no traces of a Medical School had existed; there were indeed nominal professors, but there were neither students nor public lectures. Young Monro, of course, found it necessary to select some other field for prosecuting his enquiries; accordingly, an extensive plan of education, first in London, afterwards in Paris and in Leyden, was judiciously devised, and successfully carried into execution. During his residence in these places, Monro's diligence in availing himself of every opportunity for improvement which his situation offered, was indefatigable. To the most eminent teachers of the times he repaired for instruction; and among those whose public lectures he attended, it will be sufficient to mention the names of a Cheselden, of a Hawksby, Chomel, Bouquet, Thibaut, and the immortal Boerhaave. With Boerhaave he lived in habits of strict intimacy, and, on leaving Leyden, this truly great man amply attested his professional skill, and his penetrating genius.

Monro did not rest satisfied with the knowledge derived from his attendance on these celebrated professors; eagerly desirous to excel in the profession which he embraced, he explored every collateral channel through which real knowledge could be obtained. He every-where courted the intimacy of men conspicuous for professional skill, or for literary attainments, and he associated with those who had been prosecuting the same enquiries with himself. In a society of this kind at London, he read an Essay on the Bones in general, which constituted the ground-work of a future publication.

on that subject, a treatise which alone is sufficient to confer immortality on its author, and which, in point of practical utility and accuracy of description, stands as yet unrivalled among works on osteology. Of his activity and skill as a practical anatomist, he at this time exhibited some elegant specimens in preparations of different parts of the human body, which were presented by his father to the Royal Colleges of Physicians and Surgeons, and so well received by them, that a Mr. Drummond, who was then nominal professor of anatomy, assured him, that if the future progress of his son corresponded with these fruits of his industry, he would, on his return to Scotland, resign the anatomical chair in his favour, and, by devolving his charge upon so promising a successor, convert his nominal dignity into an useful profession.

Having, in consequence of Mr. Drummond's resolution, the prospect of soon filling the anatomical chair, there can be no doubt that this corner-stone of medical science was paramount in Monro's mind to every other subject of enquiry; but to his contemporaries, his practice, and to us his writings, exhibit satisfactory proofs of his attention to every other branch of medicine, and while they maintain his title to the character of an accomplished anatomist, substantiate his claim to the reputation of an able physician.

Qualified in this manner for the duties of a practitioner, and for the office of a teacher, Dr. Monro returned to Edinburgh. In that place fame had reported his acquirements previous to his arrival, he was not of course permitted to remain long inactive. He had not resided there many months, when, in the year 1720, he was called upon to give the first course of lectures on anatomy and surgery which was ever delivered in that city. For the execution of this arduous task he brought great zeal and consummate talents, he could of course hardly fail in giving ample satisfaction; his success indeed corresponded with the expectations of his warmest admirers. The accuracy of his demonstrations, and the ingenuity of his physiological remarks, were equally conspicuous; while the constant application of his subject to the practice of physic and surgery, rendered his prelections peculiarly valuable.

It is not detracting from the abilities of this eminent professor to assert their inadequacy to diffuse the fame of a school which had to cope with so many rival seminaries of deserved eminence, without some coadjutors to second and to support his exertions. Sensible of this fact, his father, whose zeal for the establishment of a Medical School here had acquired strength proportionate to the probability of success, prevailed on Dr. Allion, the then king's botanist for Scotland, to give a course of lectures on the *Materia Medica*. Dr. Allion was a respectable associate; but other branches of medicine still remained to be illustrated. Monro, therefore, exerted his powers of persuasion to kindle in others that

enthusiasm for enlarging the boundaries of medical science with which he himself was animated. But a short period elapsed, when his endeavours in this respect were crowned with success, and the young professor soon found himself associated with colleagues whose talents gratified his most ardent wishes; with a Rutherford, a Sinclair, a Plummer, and an Innes, names which will be long remembered, and are deservedly conspicuous in the annals of medicine.

Countenanced by the labours of these eminent men, and of their immediate successors, Dr. Monro, with unremitting diligence, consecrated his time and his talents to the improvement of medical science for the period of half a century. During this long lapse of years, he must have witnessed the increasing fame of a seminary of education with a delight which resulted from a consciousness of its being, in a great measure, indebted to himself for its existence; and before the termination of his distinguished career, he found it inferior to none, and equall'd by few, of the medical schools in Europe. Such was the conspicuous reward of that aspiring genius, who had given birth to the medical seminary, which, in the time of the highly and justly famed Dr. CULLEN, arrived at the acmé of its celebrity.

We deem it not improper here briefly to sketch the arrangement which he observed in his annual course of lectures on anatomy and surgery, which, with the greatest assiduity, and without the least interruption, he delivered to a crowded and an admiring audience for the period of forty years. This course lasted upwards of six months, and so great was the reputation he acquired as a teacher, that students flocked to him, not only from the most distant parts of the British dominions, but also from foreign nations.

1. He introduced his course with an historical sketch of the progress of anatomy from the earliest ages. In delivering this interesting abstract, the strength of his memory, and his facility of expression, were peculiarly conspicuous. There are those living who still remember with what ease and fluency he gave a regular account of the most distinguished anatomists, from the earliest periods to the present times; mentioning the different improvements and discoveries, the exact periods at which every discovery was made, and the claims of different authors to the honours of particular discoveries.

2. Next followed his lectures on osteology. After a luminous and full discussion of the structure, use, and diseases of the bones in general, he entered upon the consideration of each in particular, demonstrating it to his pupils both singly and in the skeleton; and after shewing its particular parts and structure, he treated of its uses, of the diseases and accidents to which it is subject.

3. He demonstrated all the muscles of an adult subject, with the viscera of all the different cavities of the human body, and shewed the nerves and blood-vessels in the bodies of children. After demonstrating each organ, he always treated of its physiology and pathology, illustrating the diseases to which it is liable, and enumerating the most approved remedies. In this division of his course he also exhibited preparations of the different parts, as he treated of them.

4. After finishing the anatomical demonstrations of the human body, he endeavoured to illustrate still farther this interesting subject, and to throw some more light on the animal economy, by the dissection of different animals, quadrupeds, fowls, and fishes, and by comparing the structure and use of their organs with the corresponding organs in man.

5. He considered particularly the diseases for the removal of which surgical operations are commonly necessary, and the best methods of treating them. He then shewed to his pupils the different operations of surgery performed on the dead subject, and mentioned the various methods which had been proposed for performing these operations, with the advantages and disadvantages attending each.

6. After the operations of surgery, he shewed the different bandages and machines used by surgeons, with the mode of their application, and mentioned the cases in which they were useful.

7. He closed his long and laborious winter course with some general lectures on the physiology of the human frame.

We have thus briefly adverted to the plan which the celebrated Monro adopted in his lectures, because it exhibits a conspicuous proof of his great judgment, of his extensive and various information; and because it may safely be proposed as a model for the imitation of other anatomical demonstrators.

Hitherto we have contemplated this eminent man chiefly in his professional capacity; but to regard him in this light alone would be but exhibiting a partial view of his character and conduct. In the labours connected with his department in the university, his diligence and anxiety to excel were indeed exemplary; but he was no less assiduous in adding to the stock of his own knowledge, and in the improvement of medicine in its various branches, both as a science and as an art. He had long and seriously reflected on the manifold advantages which would accrue to students in medicine, to the country at large, and indeed to society in general, from the establishment of an hospital in the city of Edinburgh. To impart immediate relief to the unfortunate whom the accumulated load of disease and of poverty crush to the ground; to illustrate the healing art both by experiment and by example; to impart useful instruction not only to the

student but also to the practitioner, and even to remove some of those difficulties which impede the progress of medicine itself, were the invaluable consequences which it was reasonably expected such an establishment would produce.

The mind of this benevolent man was impressed with this view of the subject; and in order to accomplish the great work, he had recourse to every expedient which an active genius, moved by compassion for the miseries of his race, and interested in every feasible plan for their mitigation, could suggest. He wrote a pamphlet relative to the advantages which would accrue to the community from such an institution, and the impression it produced on the public was such as to interest every denomination of people in the undertaking, from the firmest conviction of its being calculated, not only to accommodate the poor and the needy, but to advance the public good. Thus was the hospital erected by the joint co-operation, not only of those whom Heaven had blessed with enlarged views and with feeling hearts, but even of others, whom the partiality of fortune had placed in affluent circumstances, and whom, although but slightly impressed with the desire of alleviating the miseries of their poor brethren, the perusal of Dr. *Monro's* pamphlet had convinced of the utility of such an establishment.

The limits of this introduction will not allow us to descant upon the character of any other individual who gave an active countenance to *Monro*, in realising this great national charity, else honourable mention might and indeed ought to be made of many benevolent characters, and more especially of the late *George Drummond, esq.* who had often occupied the chair of chief magistrate of the city of *Edinburgh*, with no less credit to himself than advantage to the public; and for whose liberal principles, and incessant endeavours for the establishment of the royal infirmary, his memory will be long held in sacred remembrance by a grateful posterity. The task of designing, superintending, and executing every part of this great work, was devolved by the first contributors upon this active magistrate and upon *Dr. Monro*, under the designation of the building committee; and by the joint exertions of these two meritorious individuals, an hospital, large, elegant, and commodious, was soon provided with every accommodation for its poor, diseased, and destitute inmates. To their mutual labours, therefore, this country is indebted for all the benefits derived from the *Royal Infirmary of Edinburgh*.

In these active exertions *Dr. Monro* looked forward to the many benevolent purposes which a public hospital would subserve, but his attention was chiefly engrossed by the advantages which would accrue from it as a field for medical education; and to the attainment of this great object he devoted an active share of his labours to the latest period of his life. When

burdened with those infirmities which labour and age had fastened upon him, he retired from his class, and consigned to his son the charge of the anatomical theatre; he was still assiduous in his attendance in the hospital, and continued to give clinical lectures, with great skill and with indefatigable industry. In the treatment of his patients his practice was rational; and his remarks on the cases which came under his view, indicated the acuteness of his intellect, and the solidity of his judgment. Even when baffled in the efforts of his medical skill, dissection furnished him with an opportunity of imparting many useful lessons to his pupils. The knowledge of the causes of disease, by dissection, was an object which occupied much of his attention, and in the investigation of which he embraced every opportunity which his different situations as physician, lecturer, and manager of the hospital afforded him. At the inspection of his dead patients he was always present; and not only dictated an accurate report of the dissection, but, with a nice discrimination, contrasted the diseased and the sound state of the organ.

From his official capacity as an anatomical demonstrator, and a clinical professor, he had many opportunities for experiments, both on the living and on the dead subject; from these opportunities he was eminently calculated to derive every possible advantage, and the fruits of his labours he consecrated to the improvement of his favourite science.

We have thus delineated Dr. Monro's character as a professor, a physician, and as a founder of our national hospital. That ardent and upright temper of mind which distinguished him in these public functions, marked his conduct in every other department of life. His practice as a medical man was very extensive. He was a member of many learned societies, and superintended the management of many public charities. These engagements, however extensive and multifarious, did not preclude him from attending to other public concerns, both of a civil and of a political nature. In short, the pursuits in which this great man was engaged, perhaps exceeded, in point of variety and importance, the avocations of any of his contemporaries; yet did he discharge the duties relative to them all, with the strictest integrity and with the most rigid punctuality.

This eminent person was at last attacked by a most painful and lingering distemper, the torments of which he endured with a pious resignation and with a steady fortitude. To this mortal disease, whose progress could not be arrested by the utmost efforts of medical skill, or of human assistance, after many months' sufferings, he fell a victim, and closed his most active and useful career on the 10th of July, 1767, in the 70th year of his age.—We shall now close this superficial sketch of our subject with a brief notice of his discoveries and works.

A circumstantial review of this learned professor's numerous discoveries and valuable improvements, both in the scientific and practical departments of the healing art, would lead us longer i. to detail than is consistent with this brief memorial. We have seen in what degree of estimation he was held by his contemporaries, and posterity will recognize his superlative merits in his writings, when every biographical notice regarding him shall have perished in the stream of oblivion. Of every society in Edinburgh, instituted either for the improvement of the arts, or for the diffusion of the sciences, he was justly regarded one of its ablest supporters, and of its brightest ornaments. He was a member of the Colleges of Surgeons and Physicians; of the Medical and Philosophical Societies; of a select society constituted for the purpose of discussing moral and political questions; and of the Society for promoting Arts, Sciences, and Manufactures, in Scotland. In the discussions of all these various bodies he engaged with an active and uniform ardour, and his zeal corresponded with his pre-eminent talents. Thus deservedly esteemed and respected at home, he was equally revered and honoured abroad. Of the Royal Society of London he was a non-resident member; and the Royal College of Physicians at Paris enrolled his name in the catalogue of its foreign associates.—Let us now take a cursory view of his writings.

His Treatise on Osteology was originally designed to facilitate the progress of students in this fundamental branch of anatomical knowledge, but it merits attention from the greatest adept in the science; and from its perusal the most experienced practitioner may derive useful information. Every person who is acquainted with this invaluable treatise, must indeed regard it as a monument of its author's abilities, exhibiting at once the most luminous proofs of extensive reading, accurate information, and judicious reflection. The description of the bones is minute, exact, and accordant with nature; the sentiments of other authors are faithfully narrated, and candidly appreciated; and the work every-where abounds with new and important observations, which have an immediate reference to practice. This great work met with the deserved reception.—Eight large impressions were sold during the author's life-time. It has been translated into most European languages; and the French edition, in folio, published by the celebrated Monsieur Sue, demonstrator to the Royal Academy of Sculpture and Painting at Paris, is one of the most superb books in print, and adorned with as elegant and masterly engravings as are to be found in any anatomical work.

To the latter editions of his Treatise on the Bones, he added a Neurology, or Anatomy of the Nerves, in which he gives a

concise and accurate description of the larger branches of these conveyers of sense and motion. As this work was also written for the improvement of his pupils, he has not delineated the minutest branches, being afraid that his going into such particular details might embarrass the minds of the young enquirers, rather than impart instruction. In this treatise he has also mentioned most of the prevailing opinions concerning their structure and use; and although succeeding anatomists have called in question his speculations relative to the texture and physiology of these important organs, it must be confessed that the arguments adduced in support of his opinions are equally specious and ingenious. To this treatise he has also subjoined an account of the receptacle of the chyle, and of the thoracic duct, organs of essential importance in the animal economy, which, in point of accuracy, has not been surpassed by any succeeding author.

We are now to consider him as a contributor to, and the editor of, another and more extensive medical work. In the year 1731 the professors of medicine, and other physicians and surgeons in the city of Edinburgh, constituted themselves into a society for collecting and publishing such medical observations and essays as the members themselves could bring forward, or as might be communicated to them by friends and correspondents. To this society Dr. Monro acted in the capacity of secretary. At the beginning of the institution the members punctually attended, and remarked upon the papers submitted to their inspection: but after the publication of the first volume, they grew remiss in the discharge of their duty, and not long thereafter the whole labour both of collecting and publishing their transactions was devolved upon the secretary. Of the papers of this collection doctor Monro furnished many more than his strict quota; and in these excellent essays he has added materially to our knowledge, both of the structure and physiology of several parts of the human body. His anatomical knowledge suggested to him many useful and practical inferences, and he proposed many new improvements in the mode of performing many capital operations, the greater part of which have been adopted by our most eminent surgeons. To doctor Monro, therefore, are we chiefly indebted for the six volumes of *Medical Essays and Observations*, a work which has been singularly approved of by the most competent judges, undergone various editions in the English language, and has, moreover, been translated into many foreign languages. The very universal reception with which this work has been deservedly honoured, supercedes the necessity of our approbation: suffice it to notice, that honourable mention is made of it by the immortal Haller, who appreciated its intrinsic merit so highly as to declare, that it ought to find a place in the li-

brary of every medical practitioner *; and indeed it must be confessed, that it has enriched every department of medical science with numerous and important discoveries. The plan of this society was afterwards enlarged by the admission of several other gentlemen, eminent for literary and philosophical talents, and by this arrangement, its transactions became philosophical as well as medical. When this society was thus new modelled, Dr. Monro was elected one of its presidents. Their papers were published under the designation of *Literary and Physical Essays*; and in the two first volumes are to be found several papers from the doctor's pen, which indicate the still exuberant treasures of his mind, and adorn the pages of that valuable collection.

His account of the success of inoculation in Scotland closed his career as an author. This paper was originally written in answer to an application from the delegates, upon whom the faculty of physicians at Paris had devolved the task of appreciating the merits of this practice. It exhibits a striking proof of his extensive correspondence, and of his indefatigable industry. It had a considerable effect in removing prejudices, which at that period were general and stubborn, and in reconciling both practitioners and parents to a simple salutary operation, that has been the means of preserving the lives of thousands, by disarming, in a great measure, a malignant distemper of its deadly virulence.

Some of his posthumous works which have appeared are distinguished by that elegance and simplicity of expression, and by that extent of information, which characterize his other masterly productions. In his *Oratio de Cuticula Humana*, many curious circumstances are described, which escaped the observation of former anatomists, particularly the appearance of the fibres which connect the cuticula with the *cutis vera*. In the *Essay on Comparative Anatomy*, originally composed from notes taken down from his lectures, but found in a more correct form among his papers, and published since his death in the quarto edition of his works, he certainly evinces considerable information. It cannot, indeed, be regarded as a complete work; but the plan is judicious, and the proper tract for enquiry pointed out, which might be easily prosecuted. The descriptions are taken from nature, and the reasoning is interesting, perspicuous, and conclusive. As in the other works of the author, so in this treatise we find many practical observations on surgery and medicine interspersed, which must equally instruct and entertain the reader.

Besides these two posthumous publications, it is understood he left several other manuscripts, which have not as yet seen the light. We have heard of a *History of Anatomical Writers*—

* *Quinque volumina Speciminum Societatis Edinburgensis prodierunt (quorum ultimum duplex est) Medicis perutilia, et Chirurgis, et Anatomicis. Monrous ibi eminet. Haller, Meth. Stud. Med. p. 69.*

An Encheiridion Anatomica—Heads of Lectures—A Treatise on Wounds and Tumors—Observations on some parts of Heister's Surgery. These papers have not been inserted in the posthumous edition of his works, although there can be little doubt of their possessing intrinsic merit; and the deserved celebrity of the author would have certainly secured them a favourable reception.

We have thus briefly reviewed the life and writings of the late doctor Alexander Monro, and it may, perhaps, be expected from us to close the narrative with a delineation of the prominent features of his character. The lineaments of his mind have, in some measure, been traced in the course of our narration, and to exhibit the aggregate of his qualifications within the limits which must be prescribed to this account, would be impossible; we shall therefore rest satisfied with observing, what indeed has already appeared in his history—that the zeal and industry displayed by him in the prosecution of knowledge have seldom been equalled, perhaps never surpassed; that he taught his favourite science with an enthusiasm and a liberality of sentiment proportioned to its vast importance; that he was conspicuous for active philanthropy and mildness of temper; that he was steady in his friendships and frank in his intercourse, a dutiful son, an affectionate father, and an excellent husband; that he was always forward to patronize modest neglected merit, and to relieve the exigencies of indigent genius. It is not contended, that in the line of his profession doctor Monro has superseded the necessity of future industry, but it is maintained that he has accomplished more than the short span of human life could well authorize us to expect from the exertions of any single individual; and that in the various stations of a student, a teacher, and a practitioner in medicine, he has exhibited a bright pattern for the imitation of posterity.

Before entering on the consideration of particular diseases, or what has commonly been styled the practice of medicine, it is necessary to give a general view of the most important functions of the animal body, and of the chief morbid affections to which they are subjected; a branch which has usually been named the *Theory or Institutions of Medicine*.

THEORY OF MEDICINE;

OR,

AN ACCOUNT

OF

THE PRINCIPAL FUNCTIONS

OF

THE ANIMAL BODY.

WHILE the functions of living animals, but particularly of the human species, are very numerous, the accounts given of these, both in a state of health and disease, are very various. Without, therefore, pretending to enumerate the contradictory opinions of different authors, we shall, in the first instance, present the reader with a view of this subject, extracted from one of the latest and best publications respecting it, the *Conspectus Medicinæ Theoreticæ* of Dr. James Gregory, professor of the practice of medicine in the university of Edinburgh.

The author introduces his subject by observing, that some functions of the human body relate to itself only, and others to external things. To the latter class belong those which, by physicians, are called the *animal functions*; to which are to be referred all our senses, as well as the power of voluntary motion, by which we become acquainted with the universe, and enjoy this earth. Among the functions which relate to the body, only some have been named *vital*, such as the circulation of the blood and respiration; because, without the constant continuance of these, life cannot subsist. Others, intended for repairing the waste of the system, have been termed the *natural functions*; for by the constant attrition of the solids, and the evaporation of the fluid parts of the body, we stand in need of nourishment to supply this waste; after

which the putrid and excrementitious parts must be thrown out the proper passages. The digestion of the food, secretion of humours, and excretion of the putrid parts of the food, are referred to this class; which, though necessary to life, may yet interrupted for a considerable time without danger.

A *disease* takes place when the body has so far declined from sound state, that its functions are either quite impeded, or performed with difficulty. A disease therefore may happen to a part of the body, either solid or fluid, or to any one of the functions: and those may occur, either single or several of them join together; whence the distinction of diseases into *simple* and *compound*.

We have examples of the most simple kinds of diseases, in rupture or other injury of any of the corporeal organs, by which means they become less fit for performing their offices; or, though the organs themselves should remain sound, if the solids or fluids have degenerated from a healthy state; or if, having lost their proper qualities, they have acquired others of a different, perhaps of a noxious nature; or lastly, if the moving powers shall become too weak or too strong, or direct their force in a way contrary to what nature requires.

The most simple diseases are either productive of others, or *symptoms* by which alone they become known to us. Every thing in which a sick person is observed to differ from one in health is called a *symptom*; and the most remarkable of these symptoms, and which most constantly appear, define and constitute the disease.

The causes of diseases are various; often obscure, and sometimes totally unknown. The most full and perfect proximate cause is that which, when present, produces a disease, when taken away removes it, and when changed also changes it. There are also remote causes, which physicians have been accustomed to divide into the *predisponent* and *exciting* ones. The former are those which only render the body fit for a disease, or which put it into such a state that it will readily receive one. The exciting cause is that which immediately produces the disease in a body already disposed to receive it.

The *predisponent* cause is always inherent in the body itself though perhaps it originally came from without; but the exciting cause may either come from within or from without.

From the combined action of the predisponent and exciting causes comes the *proximate* cause, which neither of the two taken singly is able to produce; seeing neither every exciting cause will produce a disease in every person, nor will every one predisposed to a disease fall into it without an exciting cause. A body predisposed to disease therefore has already declined somewhat from its state of perfect health, although none of its functions are impeded in such a manner that we can truly say the person is diseased. Y

sometimes the predisponent cause, by continuing long, may arrive such an height, that it alone, without the addition of any exciting use, may produce a real disease.—Of this we have examples in : debility of the simple solids, the mobility of the living solids, and in plethora.—The exciting cause also, though it should not be able immediately to bring on a disease ; yet if it continues long, will by degrees destroy the strongest constitution, and render it liable to various diseases ; because it either produces a predisponent disease, or is converted into it, so that the same thing may sometimes be an exciting cause, sometimes a predisponent one ; of which the vicissitudes of the weather, sloth, luxury, &c. are examples.

Diseases, however, seem undoubtedly to have their origin from : the very constitution of the animal machine ; and hence many diseases are common to every body, when a proper exciting cause occurs, though some people are much more liable to certain diseases than others. Some are *hereditary* ; for as healthy parents naturally produce healthy children, so diseased parents as naturally produce diseased offspring. Some of these diseases appear in the earliest infancy ; others occur equally at all ages ; nor are there wanting some which lurk unsuspected even to the latest old age, at last breaking out with the utmost violence on a proper occasion. Some diseases are born with us, even though they have no proper foundation in our constitution, as when a foetus receives some hurt or injury done to the mother ; while others, neither born with us nor having any foundation in the constitution, are sucked in from the nurse's milk. Many diseases accompany the *different stages of life* ; and hence some are proper to infancy, youth, and old age. Some also are proper to each of the sexes, especially the male sex, proceeding, no doubt, from the general constitution of the body, but particularly from the state of the parts subservient to procreation. Hence the diseases peculiar to virgins, to menstruating women, to women with child, to lying-in women, to nurses, and to old women. The *climate* itself, under which people live, produces some diseases ; and every climate hath a tendency to produce a particular disease, either from its excess of heat or cold, or from the mutability of the weather. An immense number of diseases may be produced by impure air, or such as is loaded with acid, marshy, and other noxious vapours. The same thing may happen likewise from corrupted aliment, whether meat or drink ; though even the best and most nutritious aliment will hurt, if taken in too great quantity ; not to mention poisons, which are endowed with such pernicious qualities, that even when taken in a very small quantity they produce the most grievous diseases, or even death itself. Lastly, from innumerable *accidents and injuries* to which mankind are exposed, they frequently come off with a broken limbs, wounds, and contusions, sometimes quite incur-

able; and these misfortunes, though proceeding from an external cause at first, often terminate in internal diseases.

Hitherto we have mentioned only the dangers which come from without; but those are not less, nor fewer in number, which come from within. At every breath, man pours forth a deadly poison both to himself and others. Neither are the effluvia of the lungs alone hurtful: there flows out from every pore of the body a most subtle and poisonous matter, perhaps of a putrescent nature which being long accumulated, and not allowed to diffuse itself through the air, infects the body with most grievous diseases; and does it stop here, but produces a contagion which spreads devastation far and wide among mankind. From too much or too little exercise of our animal powers also no small danger ensues. Inactivity either of body or mind, the vigour of both is impaired: nor is the danger much less from too great employment. In moderate use, all the faculties of the mind, as well as all the powers of the body, are improved and strengthened; and here nature has appointed certain limits, so that exercise can neither be too much neglected, nor too much increased, with impunity. Hence those who use violent exercise, as well as those who spend their time in sloth and idleness, are equally liable to diseases; but each to diseases of a different kind: and hence also the bad effects of too great or too little employment of the mental powers.

Besides the dangers arising from those actions of the body and mind which are in our own power, there are others arising from those which are quite involuntary. Thus, passions of the mind either when carried to too great excess, or when long continued, equally destroy the health; nay, will even sometimes bring sudden death. Sleep also, which is of the greatest service in restoring the exhausted strength of the body, proves noxious either by its too great or too little quantity. In the most healthy body also, many things always require to be evacuated. The retention of these is hurtful, as well as too profuse an evacuation, or the creation of those things, either spontaneously or artificially, which nature directs to be retained. As the solid parts sometimes become flabby, soft, almost dissolved, and unfit for their proper offices: the fluids are sometimes inspissated, and formed even into the hard solid masses. Hence impeded actions of the organs, vehement pain, various and grievous diseases. Lastly, some animals are reckoned among the causes of diseases; namely, such as support their life at the expence of others: and these either invade us from without, or take up their residence within the body, gnawing the bowels while the person is yet alive, not only with great danger and distress to the patient, but sometimes even producing death itself.

Man, however, is not left without defence against so many

great dangers. The human body is possessed of a most wonderful power, by which it preserves itself from diseases, keeps off many, and in a very short time cures some already begun, while others are by the same means more slowly brought to a happy conclusion. This power, called the *autocrateia*, or *vis medicatrix naturæ*, is well known both to physicians and philosophers, by whom it is most justly celebrated; this alone is sufficient for curing many diseases, and is of service in all. Nay, even the best medicines operate only by exciting and properly directing this force; or no medicine will act on a dead carcase. But though physicians justly put confidence in this power, and though it generally cures diseases of a slighter nature, it is not to be thought that those of the more grievous kind are to be left to the unassisted efforts of the *vis medicatrix*. Physicians, therefore, have a twofold error to avoid, namely, either despising the powers of nature too much, or putting too great confidence in them; because in many diseases these efforts are either too feeble or too violent, insomuch that sometimes they are more to be dreaded than even the disease itself. So far, therefore, is it from being the duty of a physician always to follow the footsteps of Nature, that it is often necessary for him to take a directly contrary course, and oppose her efforts with all his might.

After this general view of the functions of the animal body, of the nature and causes of disease, and of the powers by which these are to be combated, we next come to speak of the *solid materials* of which the body is formed. Dr. Gregory tells us, that the animal solid, when chemically examined, yields earth, oil, salt, water, phlogiston or inflammable air, and a great quantity of mephitic air. These elements are found in various proportions in the different parts of the body; and hence these parts are endowed with very different mechanical powers, from the hardest and most solid bone to the soft and almost fluid retina. Nay, it is principally in this difference of proportion between the quantities of the different elements, that the difference between the solid and fluid parts of the animal consist, the former having much more earth and less water in their composition than the latter. The cohesion, he thinks, is owing to something like a chemical attraction of the elements for one another; and its cause is neither to be sought for in the gluten, fixed air, nor earth. This attraction, however, is not so strong, that, even during life, the body tends to dissolution; and immediately after death putrefaction commences, provided only there be much moisture in it as will allow an intestine motion to go on. The greater the heat, the sooner does putrefaction take place, and the greater rapidity does it proceed; the mephitic air flies off, together with it certain saline particles; after which, the cohesion of the body being totally destroyed, the whole falls into a putrid

colluvies, of which at length all the volatile parts being dissipated, nothing but the earth is left behind.

This analysis, he owns, is far from being perfect; because nobody has ever been able, by combining the chemical principles of flesh, to reproduce a compound any thing like what the flesh originally was: but, however imperfect the analysis may be, it still has the advantage of showing, in some measure, the nature and causes of certain diseases, and thus leads physicians to the knowledge of proper remedies.

The *solid parts* are fitted for the purposes of life in three several ways; namely, by their cohesion, their flexibility, and their elasticity, all of which are various in the various parts of the body. Most of the functions of life consist in various motions. In some the most violent and powerful motions are required; and, therefore, such a degree of cohesion is necessary in these parts as will be sufficient for allowing them to perform their offices without any danger of laceration. It is therefore necessary that some of the solid parts should be more flexible than others; and it is likewise necessary that these parts, along with their flexibility, should have a power of recovering their former shape and situation, after the removal of the force by which they were altered.

These variations in flexibility, within certain limits, seldom produce any material consequence with regard to the health; though sometimes, by exceeding the proper bounds, they may bring on real and very dangerous diseases; and this either by an excess or diminution of their cohesion, flexibility, or elasticity. By augmenting the cohesion, the elasticity is also, for the most part, augmented, but the flexibility diminished; by diminishing the cohesion, the flexibility becomes greater, but the elasticity is diminished.

The causes of these affections, though various, may be reduced to the following heads. Either the chemical composition of the matter itself is changed, or, the composition remaining the same, the particles of the solid may be so disposed, that they shall, more or less, strongly attract one another. As to the composition, almost all the elements may exist in the body in an undue proportion, and thus each contribute its share to the general disorder. But of many of these things we know very little; only it is apparent, that the fluid parts, which consist chiefly of water, and the solid, which are made up of various elements, are often in very different proportions: the more water, the less is the cohesion or elasticity, but the greater the flexibility; and the reverse happens, if the solid or earthy part predominates.

The *remote causes* of these different states, whether predisponent or exciting, are very various. In the first place, idiosyncrasy itself, or the innate constitution of the body, contributes very much

to produce the abovementioned effects. Some have naturally a much harder and drier temperament of the body than others; men, for instance, more than women; which can with the utmost difficulty, indeed scarce by any means whatever, admit of an alteration. The same thing takes place at different periods of life; for, from first to last, the human body becomes always drier and more rigid. Much also depends on the diet made use of, which always produces a corresponding state of the solids, in proportion to its being more or less watery. Neither are there wanting strong reasons for believing, that not only the habit of the body, but even the disposition of the mind, depends very much on the diet we make use of. The good or bad concoction of the aliment also, the application of the nourishment prepared from it, and likewise the state of the air, with regard to moisture or dryness, affect the temperament of the body not a little; and hence those who inhabit mountains or dry countries, are very different from the inhabitants of low marshy places. Lastly, the manner of living contributes somewhat to this effect: exercise presses out and exhales the moisture of the body, if in too great quantity; on the contrary, sloth and laziness produce an effect directly opposite, and cause a redundancy of humours.

But, putting the chemical composition of the solid parts out of the question altogether, they may be affected by many other causes. The condensation, for instance, or compression of the particles, whether by mechanical causes, or by means of cold or heat, makes a considerable alteration in the strength and elasticity of every solid body. How much mechanical pressure contributes to this may be understood from the experiments of Sir Clifton Winttingham: and hence also are we to deduce the reason of many facts of the highest importance in the animal economy; namely, the growth, late, decrease of the body; its rigidity daily increasing; and at last the unavoidable death incident to old age from a continuance of the same causes.

Perhaps the different density of the solids is, in some measure, owing to Nature herself; but it seems rather to depend more on the powers of exercise or inactivity in changing the state of the solids, the effects of which on the body, whether good or bad, may hence be easily understood.

Heat relaxes and expands all bodies, but cold renders them more dense and hard; the effects of which on the human body are well known to most people. Though the body is found to preserve a certain degree of heat almost in every situation, it is impossible but that its surface must be affected by the temperature of the ambient atmosphere; and we have not the least reason to doubt that every part of the body may thus feel the effects of that temperature. What a difference is there between one who, exposed to the south

wind, becomes lazy and languid, scarce able to drag along his limbs, and one who feels the force of the cold north wind, which renders the whole body alert, strong, and fit for action !

That these various causes, each of which is capable of affecting the constitution of the body when taken singly, will produce much greater effects when combined, is sufficiently evident. The experiments of Bryan Robinson, the effects of the warm bath, and indeed daily experience, show it fully.

It is not yet certainly known what is the ultimate structure of the minutest parts of the animal solid ; whether it consists of straight fibres or threads, whose length is very considerable in proportion to their breadth, variously interwoven with one another, as Boerhaave supposes ; or of spiral ones, admirably convoluted and interwoven with one another, as some microscopical experiments seem to show ; or whether the cellular texture be formed of fibres and *laminae*, and from thence the greatest part of the body, as the celebrated Haller hath endeavoured to prove.

The *cellular texture* is observed throughout the whole body : it surrounds and connects the fibres themselves, which are sufficiently apparent in many of the organs, and slightly joins the different parts which ought to have any kind of motion upon the neighbouring ones. By a condensation of the same substance also, the strongest, and what seem the thinnest, membranes are formed ; the most simple of which, being accurately examined, discover the cellular structure. This cellular substance sometimes increases to a surprising degree, and all parts formed of it, membranes, vessels, &c. especially by a gentle distension ; for a sudden and violent distension either breaks it altogether, or renders it thin. Sometimes also it grows between neighbouring parts, and occupies those which nature has left free. Preternatural concretions of this kind are often observed after an inflammation of the lungs or of the abdominal viscera ; and these new membranes are found to be truly cellular. This substance, when cut, or by any other means divided, grows together of its own accord ; but if, by reason of very great inflammation and suppuration, a large portion of the cellular texture has been destroyed, it is never again renewed, and an ugly scar is left. It is even said, that this substance, in certain cases, is capable of joining the parts either of the same body with one another, or of a foreign body with them ; and upon this, if on any foundation, rests the art of Taliacotius, and that of transplanting teeth, lately so much talked of.

The cellular texture is, in some places, merely a kind of network, in others filled with fat. Wherever too great bulk or compression would have been inconvenient or dangerous, as in the head, lungs, eyes, eye-brows, penis, scrotum, &c. there it collects no fat, but is lax, and purely reticulated ; but between the muscles of the

body and limbs below the skin, in the abdomen, especially in the omentum and about the kidneys, very much fat is secreted and collected.

The *fat* is a pure animal oil, not very different from the expressed and mild vegetable ones; during life it is fluid, but of different degrees of thickness in different parts of the body. It is secreted from the blood, and is often suddenly reabsorbed into it, though pure oil is very rarely observed in the blood. It is indeed very probable, that oil, by digestion, partly in the *primæ viæ*, and partly in the lungs, is converted into gluten, and this again into oil by means of secretion; though no organs secreting the fat can be shown by anatomists. It is, however, probable, that there are such organs; and that the cellular texture has some peculiar structure in those parts which are destined to contain the fat already secreted, without suffering it to pass into other places; for it never passes into those parts which are purely reticulated, although the cellular texture is easily permeable by air or water over the whole body, from head to foot.

The fat is augmented by the use of much animal food, or of any other that is oily and nourishing, provided the digestion be good; by the use of strong drink, especially malt-liquor; by much rest of body and mind, much sleep and inactivity, castration, cold, repeated bloodletting, and in general by whatever diminishes the vital and animal powers. Much, however, depends on the constitution of the body itself; nor is it possible to fatten a human creature at pleasure like an ox. A certain degree of fatness, according to the age of the person, is a sign and effect of good health; but when too great, it becomes a disease of itself, and the cause of other diseases. It may always be very certainly removed by strong exercise, little sleep, and a spare and solid diet. The fat always makes up a considerable part of the bulk of the body, and very often by far the greatest part. Its use seems to be to make the motion of the body more easy and free, by lessening the friction of the moving parts, and thus preventing the abrasion of the solids, which would otherwise happen. It is also of use to hinder the parts from growing together, which sometimes happens, when by an ulcer, or any other accident, a part of the cellular texture containing the fat is destroyed. Besides all this, the fat contributes not a little to the beauty of the body, by filling up the large interstices between the muscles, which would otherwise give the person a deformed and shocking appearance. It is thought to be nutritious, when absorbed from its cells by the blood; but of this we have no great certainty. It seems to have some power of defending from the cold, seeing nature has bestowed it in very great quantity on those animals which inhabit the colder regions.

Those parts of the body which enjoy sense and mobility are called *living* or *vital* solids. They are the brain, cerebellum,

medulla oblongata, spinal marrow, the nerves arising from these and diffused throughout the whole body, and which are distributed through the various organs of sense and through the muscles, and lastly the muscles themselves. Sensation is much more general than mobility, as being common to all the parts already mentioned. Mobility is proper to the muscular fibres alone: wherever there is sensation, therefore, we may believe that there are nerves; and wherever there is mobility, we may believe that muscular fibres exist. Nay, even mobility itself seems to originate from the connection which the muscles have with the nerves; for soon after the nerves are compressed, or tied, or cut, the muscles to which they are distributed lose their faculties; which happens, too, when the brain itself, or the origin of the nerves, is affected. Some reckon that the muscles are produced from the nerves, and consist of the same kind of matter. Both indeed have a similar structure, as being fibrous and of a white colour: for the muscles when well freed from the blood, of which they contain a great abundance, are of this colour as well as the nerves; neither can the nervous fibres by any means be distinguished from the muscular fibres themselves. Both have also sensation; and both stimulants and sedatives act in the same manner, whether they be applied to the muscles themselves, or to the nerves.

It is difficult for us to discover the origin of many parts of the body, or to ascertain whether they are produced all at the same time or one after another; yet it must be owned, that many of the muscular parts are observed to have attained a remarkable degree of strength, while the brain is still soft and almost fluid, and that the action of these muscular parts is required for the action and growth of the brain. The muscles are also of a much firmer texture than the nerves, and enjoy a power of their own, namely, that of irritability, of which the nerves never participate. Of necessity, therefore, either the muscles must be constructed of some kind of matter different from that of the nerves; or if both are made of the same materials, their organization must be exceedingly different. But if the substance of the muscles and nerves be totally different, we may easily be convinced that much of the one is always mixed with the other; for it is impossible to prick a muscle even with the smallest needle, without wounding or lacerating many nervous fibres at the same time. Since, therefore, there is such a close connection between the muscles and nerves, both as to their functions and structure, they are deservedly reckoned by physiologists to be parts of the same genus, called the *genus nervosum*, or *nervous system*.

We shall avoid treating of sense in general, and proceed to consider particularly each of the senses, both external and internal. We begin with the sense of *feeling*, as being the most simple, and at the same time in common to every part of the nervous system.

In some places, however, it is much more acute than in others; in the skin, for instance, and especially in the points of the fingers. These are reckoned to have *nervous papille*, which by the influx of the blood are somewhat erected in the action of contact, in order to give a more acute sensation; though indeed this opinion seems rather to be founded on a conjecture derived from the structure of the tongue, which is not only the organ of taste, but also a most delicate organ of touch, than upon any certain observations.

From the sense of *feeling*, as well as all the other senses, either pain or pleasure may arise; nay, to this sense we commonly refer both pain and almost all other troublesome sensations, though in truth pain may arise from every vehement sensation. It is brought on by any great force applied to the sentient part; whether this force comes from within or from without. Whatever, therefore, pricks, cuts, lacerates, distends, compresses, bruises, strikes, gnaws, burns, or in any manner of way stimulates, may create pain. Hence it is so frequently conjoined with so many diseases, and is often more intolerable even than the disease itself. A moderate degree of pain stimulates the affected part, and by degrees the whole body; produces a greater flux of blood and nervous power to the part affected; and often stimulates to such motions as are both necessary and healthful. Hence, pain is sometimes to be reckoned among those things which guard our life. When very violent, however, it produces too great irritation, inflammation and its consequences, fever, and all those evils which flow from too great force of the circulation; it disorders the whole nervous system, and produces spasms, watching, convulsions, delirium, debility, and fainting. Neither the mind nor body can long bear very vehement pain; and indeed Nature has appointed certain limits, beyond which she will not permit pain to be carried, without bringing on delirium, convulsions, syncope, or even death, to rescue the miserable sufferer from his torments.

Long-continued pain, even though in a more gentle degree, often brings on debility, torpor, palsy, and rigidity of the affected part. But if not too violent, nor accompanied with fever, sickness, or anxiety, it sometimes seems to contribute to the clearness and acuteness of the judgment, as some people testify who have been afflicted with the gout.

Anxiety is another disagreeable sensation, quite different from pain, as being more obtuse and less capable of being referred to any particular part, though frequently more intolerable than any pain. But we must take care to distinguish between this anxiety of which we treat in a medical sense, and that which is spoken of in common discourse. The latter does not at all depend on the state of the body, but belongs entirely to the mind; and arises

from a sense of danger, or a foresight of any misfortune. The former is truly corporeal; and derives, no less than pain, its origin from a certain state of the body. Notwithstanding this difference, however, it is very possible for both these kinds of anxiety to be present at the same time, or for the one to be the cause of the other. A very great bodily anxiety will strike fear and despondency into the most resolute mind; and mental anxiety, on the contrary, if very violent and long continued, may induce the former, by destroying the powers of the body, especially those which promote the circulation of the blood.

Anxiety, in the medical sense of the word, arises in the first place from every cause disturbing or impeding the motion of the blood through the heart and large vessels near it. Anxiety, therefore, may arise from many diseases of the heart and its vessels, such as its enlargement, too great constriction, ossification, polypus, palpitation, syncope, inflammation, debility, and also some affections of the mind. It is likewise produced by every difficulty of breathing, from whatever cause it may arise; because then the blood passes less freely through the lungs: anxiety of this kind is felt deep in the breast. It is said also to arise from the difficult passage of the blood through the liver or other abdominal viscera.

A certain kind of anxiety is very common and troublesome to hypochondriacal people; and arises from the stomach and intestines being either loaded with indigested and corrupted food; or distended with air produced by fermentation and extricated from the aliments. By such a load, or distension, the stomach, which is a very delicate organ, becomes greatly affected. Besides, the free descent of the diaphragm is thus hindered, and respiration obstructed. Anxiety of this kind is usually very much and suddenly relieved by the expulsion of the air; by which, as well as by other signs of a bad digestion, it is easily known. In these cases the anxiety is usually, though with little accuracy, referred to the stomach.

Anxiety also frequently accompanies fevers of every kind, sometimes in a greater and sometimes in a lesser degree. In this case it arises as well from the general debility as from the blood being driven from the surface of the body and accumulated in the large vessels; as in the beginning of an intermittent fever. Or it may arise from an affection of the stomach, when overloaded with crude, corrupted aliment; or distended and nauseated with too much drink, especially medicated drink. As the fever increases, the anxiety of the patient becomes greater and greater; remarkably so, according to the testimony of physicians, either immediately before the crisis, or on the night preceding it, as before the breaking out of exanthemata, hæmorrhagy, sweat, or diarrhœa, which sometimes remove fevers. The patient feels likewise an anxiety from the striking in

of any eruption or critical metastasis. This sensation also accompanies fevers and most other diseases, when the vital power is exhausted, and death approaches, of which it is the forerunner and the sign. It happens at that time, because the vital powers, unable to perform their functions, cannot make the blood circulate. But what kind of anxiety this is, the other signs of approaching death shew very evidently. Moreover, even in the time of sleep, anxiety may arise from the same causes: hence frightful dreams which frequently disturb our repose with surprise and terror.

Itching, an uneasy sensation, with a desire of scratching the place affected, is often very troublesome, although it seems to be more a-kin to pleasure than to pain. As pain proceeds from too great an irritation, either chemical or mechanical, so does itching proceed from a slight one. Titillation, or friction of a woollen shirt, for instance, upon the skin of a person unaccustomed to it, and of a delicate constitution, excites itching; as do also many acrid fossils, vegetables, and animals. Hence an itching is the first sensation after the application of cantharides, although the same, when augmented, becomes painful. The same effect is produced by any thing acrid thrown out upon the skin; as in exanthematic fevers, the disease called the *itch*, &c. Lice, worms, especially ascarides, irritating either the skin or the intestines, excite a troublesome itching. Certain species of internal itching excites people to many necessary actions both in a diseased and healthy state; such as the excretion of fæces and urine, coughing, sneezing and the like.

Too acute a sensation over the whole body is very rarely if ever observed. In a particular part the sense of feeling is often more acute than it ought to be, either from the cuticle itself being too thin and soft, or being removed; or from the part itself being inflamed, or exposed to too great heat. It becomes obtuse, or is even quite destroyed over the whole body, or in great part of it, from various affections of the brain and nerves; as when they are wounded, compressed, or defective in vital power. This is called *anaesthesia*, and sometimes accompanies palsy.

This sense may be deficient in a particular part, either from the nerve being diseased by some peculiar or specific affection, or from its being compressed or wounded, or from the part itself being exposed to too great a degree of cold;—or from the scarf-skin which covers it being vitiated, either becoming too thick or hard, by the handling of too rough, or hard, or hot bodies, as is the case with glass-makers and smiths; or from the elevation of the cuticle from the subjacent cutis, or true skin itself, by the interposition of blood, serum, or pus; or from the cutis being macerated, relaxed, or become torpid, which sometimes happens to hydropic persons; or lastly, from the whole organ being cor-

rupted by gangrene, burning, cold, or contusion. This sense is very rarely depraved, unless perhaps in the case of delirium, when all the functions of the brain are disturbed in a surprising manner.

The sense next to be considered is that of *taste*, the principal organ of which is the tongue; the nearer the tip of it, the more acute is the sense, and the nearer the glottis so much the more obtuse. It must be owned, however, that some kind of acrid substances, the taste of which is scarce perceived upon the tip of the tongue, excite a most vehement sensation about its roots, or even in the throat itself. The tongue is endowed with many large and beautiful nervous papillæ, which seem to be the chief seat of this sense, and in the act of tasting are elevated and erected, in order to give the more acute sensation.

Nothing can be tasted which is not soluble in the saliva, that, being applied in a fluid form, it may pervade the involucre of the tongue, and affect its nervous pulp; and hence insoluble earths are quite insipid. Neither is it sufficient for a body to be soluble that it may be tasted: it must also have something in it saline, or at least acrid, in order to stimulate the nervous substance; and hence, whatever has less salt than the saliva is totally insipid.

The taste is rarely found to be too acute, unless through a fault in the epidermis which covers the tongue. If this be removed or wounded, or covered with ulcers, aphthæ, &c. then the taste, becoming too acute, is painful: or sometimes no other sensation than that of pain is felt. It may be impaired, as well as the sense of feeling, from various diseases of the brain and nerves; of which, however, the instances are but rare. In some people it is much more dull than in others; and in such the sense of smelling is usually deficient also. The taste is most commonly deficient on account of the want of saliva; for a dry tongue cannot perceive any taste: hence this sense is very dull in many diseases, especially in fevers, catarrhs, &c. as well on account of the defect of saliva as of appetite, which is of so much service in a state of health; or by reason of the tongue being covered with a viscid mucus.

The taste is frequently depraved; when, for example, we have a perception of taste without the application of any thing to the tongue; or, if any thing be applied to it, when we perceive a taste different from what it ought to be. This happens for the most part from a vitiated condition of the saliva, which is itself tasted in the mouth. Hence we may perceive a sweet, saline, bitter, putrid, or rancid taste, according to the state of the saliva: which may be corrupted either from the general vitiated condition of the mass of humours, or the glands which secrete it; of the mouth itself; or even of the stomach, the vapours and cructa-

tions of which rise into the mouth, especially when the stomach is diseased.

Besides the faults of the saliva, however, the taste may be vitiated from other causes; as, for instance, the condition of the nervous papillæ. This, however, is as yet little known to us; for the taste is sometimes plainly vitiated when at the same time the saliva appears quite insipid when tasted by other people.

Physicians, in almost every disease, but especially in fevers, enquire into the state of the tongue; not, indeed, without the greatest reason: for from this they can judge of the condition of the stomach; of the thirst, or rather the occasion the patient has for drink, when, on account of his delirium or stupor, he neither feels his thirst nor is able to call for drink. And, lastly, from an inspection of the tongue, physicians endeavour to form some judgment concerning the nature, increase, and remission, of the fever.

After the sense of taste, we proceed next to treat of that of smell. Its seat is in that very soft and delicate membrane, filled with nerves and blood-vessels, which covers the internal parts of the nose, and the various sinuses and cavities proceeding from thence. This sense is more acute about the middle of the septum, and the *ossa spongiosa*, where the membrane is thicker and softer, than in the deeper cavities, where the membrane is thinner, less nervous, and less filled with blood-vessels; although even these do not seem to be altogether destitute of the sense of smelling.

As by our taste we judge of the soluble parts of bodies, so by our smell we judge of those very volatile and subtile parts which fly off into the air; and, like the organ of taste, that of smell is kept moist, that it may have the more exquisite sensation, partly by its proper mucus, and partly by the tears which descend from the eyes.

Some kinds of odours greatly affect the nervous system, and produce the most surprising effects. Some gratefully excite it, and immediately recruit the spirits when almost sinking; while some produce fainting, nay, as it is alleged, even sudden death. To this head also are we to refer those antipathies which, though truly ridiculous, are often not to be subdued by any force of mind.

This sense is sometimes too acute, as well from some disease of the organ itself, which happens more rarely, as from the too great sensibility of the nervous system in general, as is sometimes observed in nervous fevers, phrenitis, and hysteria. It is more frequently, however, too dull, either from diseases of the brain and nerves, as from some violence done to the head, or from some internal cause; or it may proceed from a dryness of the organ itself, either on account of the customary humours being oppressed or turned another way, or from the membranes being

oppressed with too great a quantity of mucus or of tears. Of both these cases we have instances in the catarrh, where at first the nostrils are dry, but afterwards are deluged with a thin humour, or stopped up with a thick one. But in these, and many other examples, the membrane of the nose itself is affected with inflammation, relaxation, or too great tension, by which it is impossible but the nerves, which constitute a great part of it, must be vitiated. It is evident also, that whatever obstructs the free entrance of the air into the nostrils, or impedes its passage through them, must prove detrimental to the sense of smelling.

The sense of *hearing* is more frequently vitiated than almost any of the rest, as having a most delicate organ, and one composed of many and very small parts. It frequently becomes too acute; either from the general habit of the body being too irritable, such as often happens to hysterical and lying-in-women; or from too great a sensibility of the brain itself, which is not unfrequently observed in fevers, as well as in phrenitis, and sometimes in the true mania; or it may be from a disease of the ear itself, as when it is affected with inflammation, pain, or too great tension.—It may be rendered dull, or even be altogether destroyed, so that the person shall become totally deaf, from the same causes acting with different degrees of force. This happens especially from the want of the external ear; or from the meatus auditorius being stopped up with mucus, wax, or other matters; or from the sides of the canal growing together, as sometimes happens after suppuration or the small-pox; or by the membrane of the tympanum becoming rigid or relaxed, or being eroded or ruptured; or the tympanum itself, or the Eustachian tube, may from certain causes be obstructed; or some of the little bones or membranes, or some of the muscles of the labyrinth itself, may be affected with concretion, spasm, palsy, or torpor; or lastly, it may happen from diseases of the brain and nerves, all the organs of hearing remaining sound. Hence deafness is often a nervous disease, coming suddenly on, and going off of its own accord. Hence also it is common in old people, all of whose solid parts are too rigid, while their nervous parts have too little sensibility.

Persons labouring under fevers, especially of the typhous kind, often become deaf. When this comes on along with other signs of an oppressed brain, and a great prostration of strength, it may be a very bad sign; but for the most part it is a very good one, even though accompanied with some degree of torpor or sleepiness.

A very common disease in the sense of hearing is when certain sounds, like those of a drum, a bell, the falling of water, &c. are heard without any tremor in the air, or without another person's hearing any thing. This disease is called *tinnitus aurium*,

of which various kinds have been observed. For the most part it is a very slight transient disorder; but sometimes it is most obstinate, long-continued, and troublesome. It sometimes arises from the slightest cause, such as any thing partially stopping up the meatus auditorius or Eustachian tube itself, so that access is in part denied to the air; whence it happens that the latter strikes the membrane of the tympanum, or perhaps the interior parts, unequally, and with too much force. Hence *bombi*, a kind of tinnitus, are heard even by the most healthy when they yawn.

A much more frequent and troublesome species of tinnitus accompanies many diseases both of the febrile and nervous kind. This is occasioned partly by the increased impetus of the blood towards the head, with an increase of sensibility in the nervous system itself, so that the very beatings of the arteries are heard; and partly from the increased sensation and mobility of the nerves and muscles of the labyrinth: whence it happens, that the parts which ought to be at rest until excited by the tremor of the air, begin to move of their own accord, and impart their motion to other parts which are already in a morbid state of too great sensibility.

A tinnitus sometimes arises from any vehement affection of the mind; sometimes from a disorder in the stomach; sometimes from a rheumatic disorder affecting the ears and head; or from a catarrh, which commonly affects the tube. Sometimes, however, the tinnitus alone affects the patient; and even this is a disease of no small consequence. These various causes, however, both of this and other disorders of the hearing, are often very difficult to be distinguished, as well on account of the inaccessible situation of the organ, as on account of the little knowledge we have of its action. But from whatever cause it arises, both this and the other various affections of the hearing can neither be cured certainly nor easily.

Concerning the nature of the sense of *sight*, the reader may consult the best treatises on *OPTICS*. Of this sense some slight disorders, or rather varieties, are often observed. Those persons are called *short-sighted* who cannot see distinctly unless the object be very near them. This disorder arises from too great a refraction of the rays, by reason of their being too soon collected into a focus by the crystalline lens, and diverging again before they fall upon the retina, by which means they make an indistinct picture upon it. The most usual cause is too great a convexity of the eye or some of its humours, as too prominent a cornea. It is a disorder common to young people, which is sometimes removed when they grow older. As soon as the first approaches of short-sightedness are observed, it is supposed it may be obviated by the person's accustoming himself to view remote objects, and keeping his eyes off very small and near ones; as, on the contrary, it may be

brought on by the opposite custom, because the eye accommodates itself somewhat to the distances of those objects which it is accustomed to view. But a concave glass, which causes the rays of light to diverge more than naturally they would before falling upon the cornea, is the most simple and certain remedy.

Long-sighted people are those who cannot see an object distinctly unless it be at a considerable distance from them. This arises from causes contrary to the former; namely, the eye being too flat, so that there is no room for refracting the rays and bringing them into a focus. Hence this defect is common in old people, and remedied by the use of convex glasses.

Those are called *nyctalopes* who see better with a very weak than with a strong light. It is a defect very seldom to be met with in the human race, though every person is sensible of it who hath been long kept in the dark and is then suddenly brought into the light. The disease arises from too great a sensibility of the retina, and the pupil being too open.

The sight is liable to many and grievous disorders. It is sharpened beyond measure, so that the person either perceives nothing distinctly, or with great pain, from the same causes that induce a similar disorder in the other senses; namely, excessive sensibility in the general habit of body, or a particular state of the brain common in phrenitis, or even in those afflicted with fevers arising from inflammation or too great excitement; though more frequently from the condition of the eye itself, one becomes unable to bear the light. The inflammation of the tunica adnata, and the forepart of the sclerotica, is communicated to the back parts of it, and from thence to the choroides and retina itself. Hence the light becomes intolerable, and vision is attended with pain and great irritation, sometimes inducing or augmenting a delirium.

The sense of seeing is made dull, or even totally abolished, by age; the aqueous humour not being supplied in sufficient quantity, and the cornea and lens, or the vitreous humour, becoming shrivelled or decayed. It may likewise happen from the cornea becoming dry and opaque; which is to be imputed to the languid motion of the blood, and to great numbers of the small vessels being obstructed, or having their sides concreted; or from the crystalline lens becoming yellow like amber, and the retina itself less sensible, for old age diminishes every sensation. It is totally abolished by injuries of the brain, the optic nerve, or the retina, even though the structure of the organ should remain sound. This disease is called an *amaurosis*; and it is easily known by the dilatation and immobility of the pupil, the humours of the eye remaining clear. It is commonly owing to congestion of blood; and sometimes, where no congestion of blood can be shown, to mere torpor of the nerves. If it be only a torpor of part of the retina, we see black spots in those things at which we look; or flies seem

to pass before our eyes, a very bad sign in fevers, and almost always mortal. The light is abolished also by the obscurity or opacity of any of the parts through which the rays ought to pass and be refracted; as if the cornea lose its transparency by being covered with spots; or the aqueous humour become corrupted with blood, serum, or pus; or the lens (which often happens, and which is called a *cataract*) becomes of a grey or brown colour, or the vitreous humour be in like manner corrupted; or lastly, when all the humours being dissolved, confused, and mixed together, by inflammation and suppuration, either do not suffer the light to pass at all, or to pass imperfectly and unequally; whence either no image is formed on the retina, or it appears obscure, distorted, imperfect, and ill-coloured.

The light is also depraved, when things appear to it of a colour different from their own, or even in another situation, and of another shape than they ought to have. This happens from the humours being tinged with any unusual colour, as is said to happen in some instances of jaundice; or from an extravasation and mixture of the blood with the aqueous humour. A surprising depravation also, or constant and perpetual defect of vision, is not unfrequently observed in men otherwise very healthy, and who see quite clearly; namely, that they cannot distinguish certain colours, green, for example, from red. Another depravation is, when, without any light being admitted to the eyes, sparks, small drops of a flame or gold colour, and various other colours, are observed to float before us. This is generally a very slight and transient disorder, common to those whose constitutions are very irritable; and arises from the slight impulse, as it would seem, on the retina, by the vessels beating more vehemently than usual. A fiery circle is observed by pressing the eye with the finger after the eye-lids are shut. The same reason, perhaps, may be given for those sparks which are seen by persons labouring under the falling-sickness, and increasing to the size of an immense and luminous beam before they fall down in convulsions. A similar beam those who have recovered from hanging or drowning testify that they have observed; for, by reason of the respiration being suppressed, the vessels of the head swell and compress the whole brain and nervous parts of the head. Sparks of the same kind, and these too of no good omen, are observed in patients labouring under a fever, where a phrenitis or fierce delirium is at hand: and likewise in those who are threatened with palsy, apoplexy, or epilepsy.—A distinct but false perception, namely, of visible things which do not exist, is to be imputed to some injury of the brain, to madness or a delirium, not to any disease of the eye.

A very frequent *defect of vision* remains to be mentioned; namely, *squinting*. A person is said to squint who has the axes of his eyes more oblique than usual, and directed to different points.

Hence a great deformity, and often an imperfect and confused vision, by which the objects are sometimes seen double. It is an evil for the most part born with the person, and often corrected by those attempts which an infant makes to see more pleasantly and distinctly; and this even without being conscious of its own defects. It is also easily learned, especially in infants, even without their own knowledge, by that kind of imitation which has a great influence over the human race, especially in their tender years.—It is by no means, however, so easily unlearned.

Squinting is frequently occasioned by a spasm, palsy, rigidity, &c. of the muscles which manage the eye; by epilepsy; by certain diseases of the head, the hydrocephalus especially; or by any great injury done to the head. Sometimes, though very rarely, it comes on suddenly without any known cause. It is very probable, however, that squinting often arises from a fault of the retinae, when their central points, for instance, and those similarly placed with respect to the centre, do not agree. In this case there must be a contortion of the eye; that the object may not be seen double. This seems also to be the reason why squinting is horribly increased when the person brings the object near his eye, in order to view it more perfectly. Or if the central point of either, or both, of the retinae be insensible, or nearly so, it is necessary for the person to distort his eyes that he may have any distinct vision of objects. If the optic nerve had not entered the retina obliquely, but passed directly through its centre, we would all either have squinted or seen double.

Physicians have referred to the sense of vision that most troublesome sensation which we call a *vertigo*: though it seems rather to belong to that of feeling, or of consciousness; for in many instances the disorder is not removed either in the dark or by shutting the eye-lids. The vertigo takes place when external objects really at rest seem to reel, to whirl round, to tremble, or to move in any manner of way. If the disorder be very violent, the person is neither able to see, on account of a dimness of sight; nor can he stand, as the powers fail which ought to govern the limbs. A nausea also usually accompanies the vertigo, and the one generally produces the other.

This disorder is observed to be both the symptom and forerunner of some dangerous diseases; such as apoplexy, epilepsy, hysteria; hæmorrhages from the nose and other parts; suppressions of the menses; plethora; fevers, as well such as are accompanied with debility as those in which there is an increased impetus of the blood towards the head. An injury done to the head also, but rarely one done to the eyes, unless in so far as it affects the whole head, brings on a vertigo. A vertigo may be likewise produced by a very great and sudden loss of blood or other fluid; by debility; syncope; various diseases of the alimentary canal, of the stomach.

especially; poisons admitted into the body, particularly of the narcotic kind, as opium, wine, &c. and hence vertigo is a symptom of every kind of drunkenness. Various motions also, either of the head or the whole body, being tossed in a ship, especially if the vessel be small and the sea runs high, produce a vertigo. In these and similar examples, the unusual and inordinate motions of the blood are communicated to the nervous parts which are in the head; or these being affected by sympathy from the neighbouring parts, produce a confused sensation, as if of a rotatory motion. Nay, it is often produced from an affection of the mind itself, as from beholding any thing turned swiftly round, or a great cataract, or looking down a precipice, or even by intense thought, without looking at any thing.

Though a vertigo be, for the most part, a symptom and concomitant of other diseases, yet it is sometimes a primary disease, returning at intervals, increasing gradually, and equally impeding and destroying the functions of the body and mind.

Having treated of the external senses, we next proceed to consider those properly called *internal*; which are, the *memory*, the *imagination*, and the *judgment*. The first is lessened, disturbed, or even totally destroyed, in many diseases, especially those which affect the brain; as the apoplexy, palsy, internal tumors of the head, external violence applied, fevers, especially those in which there is an increased motion of the blood towards the head, or where the brain is any other way very much affected. It is very rarely, however, depraved in such a manner that ideas are not represented to the mind in their proper order; or if at any time such a disorder occurs, it is considered rather as a disorder of the imagination, or as a delirium, than a failure of the memory. The mind is said to be disordered, when the perceptions of memory or imagination are confounded with those of sense, and of consequence those things believed to be now present which are really past, or which never existed; or when the sense of the person concerning ordinary things is different from that of other people. The general name for such disorders is *vesania*: if from fever, it is called *delirium*. A general fury without a fever, is called *mania*, or *madness*: but a partial madness, on one or two points, the judgment remaining sound in all other respects, is called *melancholia*. There is, however, no exact and accurate limits between a sound mind and madness. All immoderate vivacity borders upon madness; and, on the other hand, a sorrowful and gloomy disposition approaches to melancholy.

Delirium accompanies fevers of many different kinds. Sometimes it is slight, easily removed, and scarce to be accounted a bad sign. Often, however, it is very violent, and one of the very worst of signs, requiring the utmost care and attention.

A delirium is either fierce or mild. The fierce delirium is preceded and accompanied by a redness of the countenance, a pain of

the head, a great beating of the arteries, and noise in the ears; the eyes in the mean time looking red, inflamed, fierce, shining, and unable to bear the light; there is either no sleep at all, or sleep troubled with horrid dreams; the wonted manners are changed; an unusual peevishness and ill-nature prevail. The depravation of judgment is first observed between sleep and waking, and by the person's crediting his imagination, while the perceptions of sense are neglected, and the ideas of memory occur in an irregular manner. Fury at last takes place, and sometimes an unusual and incredible degree of bodily strength, so that several people can scarce keep a single patient in his bed.

The mild delirium, on the contrary, is often accompanied with a weak pulse, a pale collapsed countenance, and a vertigo when the patient sits in an erect posture; he is seldom angry, but often stupid, and sometimes remarkably grieved and fearful. The loss of judgment, as in the former kind, is first perceived when the patient is half awake; but a temporary recovery ensues upon the admission of the light and the conversation of his friends. The patient mutters much to himself, attends little to the things around him; at last, becoming quite stupid, he neither feels the sensations of hunger or thirst, nor any of the other propensities of nature, by which means the urine and excrements are voided involuntarily. As the disorder increases, it terminates in subfultus tendinum, tremors, convulsions, fainting, and death. The other species of delirium also frequently terminates in this, when the spirits and strength of the patient begin to fail.

The symptoms accompanying either of these kinds of delirium show an unusual, inordinate, and unequal motion of the blood through the brain, and a great change in that state of it which is necessary to the exercise of the mental powers. It is sufficiently probable, that an inflammation of the brain, more or less violent or general, sometimes takes place, although the signs of universal inflammation are frequently slight. This we learn from the dissection of dead bodies, which often show an unusual redness of the brain or of some of its parts, or sometimes an effusion or supuration.

The state of the brain, however, may be much affected, and a delirium induced, by many other causes besides the motion of the blood. In many fevers, typhus, for instance, the nervous system itself is much sooner and more affected than the blood; and though the morbid affections of the nervous system are as invisible to the senses as the healthy state of it, the symptoms of its injuries plainly show that its action, or *excitement* as some call it, is unequal and inordinate. In this way, too, a delirium is produced by several poisons.

The pathology of melancholy mania is much more obscure; as coming on without any fever, or disturbance in the blood's motion. Often also this is hereditary, depending on the original structure

of the body, especially of the brain; the fault of which, however, cannot be detected by the nicest anatomist. But it is well known, that various diseases of the brain, obstructions, tumors, either of the brain itself, or of the cranium pressing upon it, any injury done to the head, and, as some physicians relate, the hardness and dryness of the brain, and some peculiar irritations affecting the nervous system, are capable of bringing on this malady. And indeed so great are the irritations affecting the nervous system in mad people, that they often sleep little or none for a long time.—Yet even this so defective and imperfect knowledge of the diseases of the brain and nerves, is by no means free from difficulties. For though we know that the brain, or a certain part of it, is hurt, or that it is irritated by a swelling, or a pointed bone growing into it, nobody can foretell how great, or what may be the nature of the malady from such a hurt; for examples are not wanting of people who, after losing a large part of the brain, have recovered and lived a long time; or of those who have perceived no inconvenience from a large portion of that viscus being corrupted, until at length they have fallen suddenly down and died in convulsions.

Another disease of the internal senses, quite different from these, is *fatuity* or *idiotism*. Those are called *idiots* who are destitute either of judgment or memory, or else have these faculties unequal to the common offices of life. A kind of idiotism is natural and common to all infants; neither is it to be accounted a disease; but if it lasts beyond the state of infancy, it is a real disease, and for the most part incurable. It has the same causes with the other diseases of the internal senses: although these can scarcely be detected by the eye or by the knife of the anatomist. It frequently accompanies, or is the effect of, epilepsy. Hence, if the epilepsy derives its origin from causes not seated in the head, as from worms lodging in the intestines, the fatuity may be cured by dislodging these, and removing the epilepsy. It is not unlikely that the fatuity of children, and the dotage of old men, may arise from the brain being in the former too soft, and in the latter too hard.

The muscular power may be diseased in a great number of ways. The mobility itself may be too great; but this must be carefully distinguished from vigour. By mobility is meant the ease with which the muscular fibres are excited into contraction. The vigour, on the other hand, is that power with which the contraction is performed. They are sometimes joined, but more frequently separate, and for the most part the excesses of each are owing to contrary causes.

Too great mobility is when motions are excited by too slight a stimulus, or when too violent motions are produced by the customary stimulus. A certain habit of body, sometimes hereditary, renders people liable to this disease. Women have a greater share

of mobility than men have. Infants have a great deal of mobility, often too great; youth has less than infancy, but more than man's estate; though old age has commonly too little. A lazy, sedentary life, too full diet, a suppression of the usual evacuations, fulness of the blood-vessels, and sometimes their being suddenly emptied, laxity, flaccidity of the solids in general, but sometimes too great a tension of the moving fibres, the use of diluents, especially when warm, or heat applied in any manner, produce too great mobility. And this may be either general or particular, according as the causes have been applied to the whole body or only to a part of it.

Vigour in general is rarely morbid; although sometimes certain muscular parts appear to have too great strength. In maniacs and phrenitics an immense strength is observed in all the muscles, especially in those that serve voluntary motion, which is not unjustly reckoned morbid. The reason of this excess is very obscure; however, it is plainly to be referred to a diseased state of the brain.

A more frequent and more important excess of vigour is observed in those muscular fibres that do not obey the will, such as those which move the blood. Its circulation is thus often increased, not without great inconvenience and danger to the patient. But a slighter excess of this kind, pervading the whole body, renders people apt to receive inflammatory diseases, and is usually called a *phlogistic diathesis*. But this is better observed when local, as in inflammation itself.

Too great vigour of the muscular fibres may arise from the nervous power increased beyond measure, as in mania, phrenitis, or violent affections of the mind; from too great a tension of the fibres, by which they more easily and vehemently conceive motions, as of the arteries when filled with too much blood; from catching cold, by being exposed either to cold or heat, as usually happens in the spring; or lastly, though the nervous power and tension of the fibres should not at all be changed, their action may become too great, from a stimulus more violent than usual being applied, or from the usual stimulus if the fibres themselves have already acquired too great a share of mobility.

The opposite to too great mobility is torpor, and to too great vigour is debility. Torpor is such a diminution of mobility as renders the parts unequal to their functions. It arises from causes directly opposite to mobility; such as, in the first place, a harder and more rigid contexture of the parts themselves, or even sometimes from one too lax and flaccid; from old age; from some peculiar temperament of body, such as one phlegmatic, frigid, or insensible; too great and incessant labour, cold, spare diet, and an exhausted body. This is the evil more to be dreaded, because the powers of the body being deficient, Nature is neither able to make any effort herself, nor are the remedies, in other cases the most efficacious, capable of affording her any assistance.

Debility takes place, when the motion of the muscles, either vo-

luntary or involuntary, is not performed with sufficient strength. A greater or lesser share of debility, either general or of some particular part, accompanies almost all diseases, and is indeed no small part of them: for it is hardly possible that a disease can subsist for length of time without inducing some degree of debility. When a state of debility is induced, it renders a man obnoxious to innumerable disorders, and throws him as it were defenceless in their way. It often depends on the original structure of the body, so that it can be corrected neither by regimen nor medicines of any kind. A different degree of strength also accompanies the different ages of mankind; and thus in some cases debility cannot be reckoned morbid. But a truly morbid and unwonted debility arises from the nervous force being diminished; from diseases of the brain and nerves, or of the muscles through which they are distributed; from a decay of the nerves themselves; from a want of the due tension of the fibres, or the fibres themselves becoming torpid; from the body exhausted by spare diet, want, evacuation; or lastly, from diseases affecting the whole body, or some particular parts of it.

The highest degree of debility, namely, when the strength of the muscles is altogether or nearly destroyed, is called *paralysis* or *palsy*; and either universal, or belonging only to some particular muscles. An universal palsy arises from diseases of the brain and nerves, sometimes very obscure, and not to be discovered by the anatomist; for the nervous power itself is often deficient, even when the structure of the nerves remains unhurt: yet often a compression, obstruction, or injury of the vessels, extravasation of blood, or serum, collections of pus, swellings, &c. are discovered. It frequently arises from certain poisons acting on the nerves; from the fumes of metals; from the diseases of parts, and affections of the muscles very remote from the brain, as in the colic of Poidou. A palsy of single muscles, but less perfect, often arises without any defect of the brain or nerves, from any violent and continued pain, inflammation, too great tension, relaxation, rest, or destruction of the texture of the parts, such as commonly happens after the rheumatism, gout, luxations, fractures of the bones, and ischuria.

An *universal* palsy, however, as it is called, seldom affects the whole body, even though it should originate from a disease of the brain. We most commonly see those who are paralytic affected only on one side, which is called an *hemiplegia*. It is said that the side of the body opposite to the diseased side of the brain is most commonly affected. If all the parts below the head become paralytic, it is called a *paraplegia*. In these diseases, the senses for the most part remain; though sometimes they are abolished, and at others rendered dull. Sometimes, though rarely, and which is an exceeding bad symptom, the motion, sensation, pulse, and heat of the paralytic limbs are lost; in which case the arteries themselves

become paralytic. A palsy of the whole body, as far as regards the voluntary motions, with anæsthesia and sleep, is called an *apoplexy*. This proceeds from some injury of the brain: though a state very similar to it is induced by narcotics, opium, wine itself, or any generous liquor taken to excess; and lastly, by breathing in air corrupted by noxious impregnations, such as a large proportion of carbonic acid, hydrogenous gas, or any similar active æriform fluid.

Another disease to which muscular motion is liable, and that neither slight nor unfrequent, is called *spasm*. This is a violent and irregular motion of the muscles. Of spasms there are two kinds, the tonic and clonic. The latter is frequently called a *convulsion*; in order to distinguish it from the other, which is more peculiarly called *spasm*.

Spasm therefore is a violent, constant, and preternatural contraction of the muscular fibres; but a convulsion is an unusual and violent contraction alternated with relaxation. People are rendered liable to spasm by too sensible an habit of body, or too great mobility; and hence it is a disease common in women, in infants, and in weak, luxurious, lazy, and plethoric people. It is brought on those already predisposed to it, by any kind of stimulus applied to the brain, or to any nerve, muscle, or nervous part connected with it: of which we have examples in dentition; worms lodged in the intestines, and irritating them; any acrid matter infecting the blood, or much affecting the stomach and intestines; the irritation of any nerve, or of the brain itself, by an exostosis, swelling, too great fulness of the vessels, pain, vehement affections of the mind, sudden evacuation, or poisons admitted into the body. Frequently, however, the malady originates from slight causes, little known, and not easily observed.

Spasm is both the cause and effect, and frequently constitutes the greatest part, of most diseases. It is often very difficult either to be known or cured; because it is so multiform, and produces as many different symptoms as there are organs affected; of which it surprisingly disturbs, impedes, or increases the functions. It is a disease seated in the original stamina of the constitution; and neither to be removed by slight remedies, nor in a short time.

With regard to sleep, its use is sufficiently apparent from the effects which it produces in the body. It restores the powers both of mind and body when exhausted by exercise, giving vigour to the one, and restoring its wonted alacrity to the other. It renders the muscles again active and moveable, after they have become wearied, rigid, painful, and trembling by hard labour. It moderates the quickness of the pulse, which usually increases at night, and brings it back to its morning standard. It seems also to assist digestion of the aliment; lessens both the secretions and excretions; and renders the fluids thicker than otherwise they would be, especially in a body endowed with little sensi-

bility or mobility. Hence sleep is not only useful, but absolutely necessary for preserving life and health; and is a most excellent remedy both for alleviating, and totally removing, a great many diseases.

Want of sleep is hurtful in a great many different ways, especially to the nervous system. It renders the organs of sense both external and internal, as well as those of every kind of motion, unfit for performing their offices. Hence the sensations are either abolished, or become imperfect or depraved; and hence imbecility of mind, defect of memory, a kind of delirium, mania itself, pain of the head, weakness of the joints, an imperfect or inordinate action of the vital organs, quickness of pulse, heat, fever, depraved digestion, atrophy, leanness, and an increase or perturbation of the secretions and excretions.

Sleep may be prevented both in healthy and sick people from various causes; such as strong light, noise, pain, anger, joy, grief, fear, anxiety, hunger, thirst, vehement desire, motion of the body, memory, imagination, intense thought, &c. On the other hand, sleep is brought on by a slight impression on the organs of sense, or none at all; by the humming of bees, the noise of falling water, cold and insipid discourse; or lastly, by such an exercise of the memory as is neither too laborious nor disturbing to the mind.—Too great an impulse of the blood towards the head, such as often happens in fevers, prevents sleep: but a free and equal distribution of the blood through the whole, especially the extreme parts, frequently brings it on. Whatever weakens the body also favours sleep; and hence various kinds of evacuations, the warm bath, fomentations, sometimes heat itself, are useful for promoting it. It also comes on easily after taking food, or indulging venery; the violent sensation being then quieted, and the body itself somewhat weakened. Cold produces a deep sleep of long continuance, not easily disturbed, and often terminating in death. Lastly, there are certain substances which, when applied to the body, not only do not excite the nervous system, but plainly lay us asleep, and render us unfit for sensation: of this kind are those called *narcotics*, as opium and the like; among which also we may reckon wine taken in too great quantity. Lastly, watching itself is often the cause of sleep; because, while a man is awake, he always more or less exercises the organs of his body, by which the nervous influence is diminished, and thus the more violently the body is exercised, in the same proportion is the person under a necessity of sleeping.

Sleep is deficient in many diseases; for there are few which do not excite pain, anxiety, or uneasiness, sufficient to prevent the approach of sleep, or to disturb it. Fevers generally cause those who labour under them to sleep ill; as well on account of the uneasiness which accompanies this kind of diseases, as by reason of the impetus of the blood towards the head being frequently increased;

and likewise from the stomach being disordered, loaded with meat, or distended with drink. Hence also we may see the reason why many hypochondriac and hysteric patients sleep so ill; because they have a bad digestion, and their stomach is disposed to receive many though frequently slight disorders; the slightest of which, however, is sufficient to deprive the patient of rest, provided the body be already irritable, and endowed with too great a share of mobility.

Want of sleep will hurt in diseases as well as in health; and for the same reason; but in a greater degree, and more quickly, in the former than in the latter; and is therefore not only a very troublesome symptom of itself, but often produces other very dangerous symptoms.

Too much sleep, on the other hand, produces many mischiefs, rendering the whole body weak, torpid, and lazy; and it even almost takes away the judgment. It also disturbs the circulation, and diminishes most of the secretions and excretions. Hence plethora, fatness, flaccidity, and an inability for the common offices of life. The causes of this excess are, either the usual causes of sleep above mentioned increased beyond measure, or some fault in the brain, or a compression of it by an extravasation of the humours; or sometimes, as it would seem, from great debility produced by an unusual cause, as in those who are recovering from typhous fevers and other diseases. In these examples, however, this excess of sleep is by no means hurtful; not even, perhaps, in those cases where an excess of grief continued for a long time, or a great fright, have produced a surprising and unexpected somnolency. Lastly, many people have accustomed themselves, and that not without a great deal of hurt to their constitutions, to sleep too much. Nor are there examples wanting of some who have passed whole days, and even months, in sleep almost uninterrupted.

With the manner in which the circulation of the blood is performed, and the various principles of which it is composed, we suppose the reader previously informed. As for the disorders to which the blood and its circulation are subject, Dr. Gregory observes, that in our younger years, the veins are much more dense, firm, and strong, than the arteries; but the latter, by reason of the continual pressure upon them, and the strength which they exert, become daily more firm, hard, and strong, until at last they equal or exceed the veins themselves in strength; and it is not uncommon in old men to find some part of the arteries converted into an horny substance, or even into a solid bone. Hence, in the state of infancy, the greatest part of the blood is contained in the arteries, and in old age in the veins; an affair indeed of no small moment, as it shows the reason in some measure of the state of increase and decrease of the body. Besides, if any disease happens from too great a quantity of blood, it thence appears that it must show itself in young subjects in

the arteries, and in old ones in the veins; and this is the reason of many diseases which accompany certain periods of life.

In most, if not in all species of animals, the arteries of the females are much more lax and capacious when compared with the veins, and the veins much less, than in the males of the same genus. The design of nature in this conformation, is probably that they may be the better able to nourish the fœtus in their womb. The same likewise seems to be the reason why women are more inclined to plethora than men; and to this greater capacity of the arteries and smallness of the veins are we to ascribe that beauty and elegant shape of the arms in women, not disfigured or livid with veins as in men.

The blood is also distributed in various proportions to the different parts of the body, and that proportion too differs at different periods of our lives. At first an immense quantity is sent to the head, because that part of the body is first to be evolved and fitted for its offices: but as soon as the parts begin to make a considerable resistance to the efforts of the blood, and the vessels cannot easily be further dilated, it is necessarily sent off to other parts; by which means the rest of the body increases in bulk, and becomes fitted for performing its proper functions. The effect of this change is also very soon observed, namely, when none of the blood passes through the navel, and of consequence a greater quantity is sent by the iliac arteries to the inferior extremities. These, though so small and slender in the fœtus, increase very suddenly; so that often, in not many months, the child can not only stand on its feet, but even walk tolerably well.

Physicians are wont to judge of the state of the circulation by the *pulse*; which indeed is very various, as well with regard to its frequency, as to the strength and equality of its strokes and intervals. — Its common quickness in a healthy grown-up person is about 70 strokes in a minute. In a fœtus, perhaps, it is more than double; and in an infant a few months old, hardly less than 120. As we grow up, this quickness gradually diminishes; so that in extreme old age it sometimes does not exceed 50, or is even slower. This rule, however, is not without exceptions: for many, especially those of an irritable habit, have the pulse much quicker; while others, even in the vigour of their age, have the pulse remarkably slow. It is for the most part somewhat quicker in women than in men.

The pulse is also rendered quicker, both in a healthy and diseased body, by the application of stimuli of many different kinds. Exercise especially, by accelerating the return of the blood through the veins, increases the quickness of the pulse to a surprising degree. Various kinds of irritations affecting the nervous system, as intense thinking, passions of the mind, pain, heat, stimulating medicines, wine, spices, &c. likewise produce the same effect. The acrimony of the blood itself also is thought to quicken the pulse.

When a person first awakes in the morning, the pulse is slow, but becomes quicker by degrees on account of the many irritating matters applied to the body. Its quickness is increased after taking food, especially of the animal kind, or such as is hot or seasoned with spices. In the evening a slight fever comes on, for which rest and sleep are the remedy. These things, however, are scarce to be observed in a healthy person, but are very evident in one that is feverish, especially when the disease is a hectic.—Again, even debility itself often renders the pulse quicker than usual; because the ventricle of the heart not being quite emptied, is sooner dilated again, and of consequence contracts the sooner. For this reason a physician can never judge of the strength of the circulation from the frequency of the pulse.

Lastly, in all fevers, however different from one another, the pulse is found to be too quick, partly perhaps from debility, partly from the acrimony of the fluids, and partly from the repulsion of the blood from the surface of the body, and the accumulation of it in the large vessels where it acts as a stimulus; though it must be owned, that a great deal of this is obscure, if not totally unknown; nor in truth are we able to understand in what manner the *autocratia* acts with regard to the frequency of the pulse.

The pulse is seldom observed too *slow*, unless when the mobility of the body is much diminished, as in decrepid old age, or from a compression or disease of the brain; but a greater compression of the brain usually produces a still more remarkable slowness of the pulse, as in the hydrocephalus, apoplexy, &c.—Sometimes also the pulse is too slow in those who are recovering from tedious fevers. But this is a matter of little moment, and seems to be owing to some kind of torpor. Indeed it has generally been considered as a mark of a thorough and complete solution of the fever; for it is commonly observed, that when this state of the pulse takes place, the patient seldom suffers a relapse.

While the *frequency* of the pulse continues the same, its *strokes* may be either full, great, strong, and hard; or soft, small, and weak. A full, great, and strong pulse takes place when the ventricle strongly and completely empties itself; throwing out a great quantity of blood into the arteries, which fully distends them and stimulates them to a strong contraction. A pulse of this kind is common in strong healthy men, and is seldom to be accounted a symptom of disease. But if it be too strong, and strike the finger of the person who feels it violently and sharply, it is called a *hard pulse*. This hardness is produced by a sudden and violent contraction of the heart and arteries, which distends even the remote branches, as those of the wrist, too suddenly and smartly, and excites them also to sudden and violent contractions.

A *hard pulse* therefore denotes too great an action of the heart and arteries. It may arise from various causes: in the first place,

from too great a tension of the vessels; for instance, from their being too full, and by that means more prone to motion, and the more fit for receiving violent motions. It may arise also from too great a density and firmness of the solids; and hence it is most frequent in cold countries, among strong robust people, and such as are accustomed to hard labour. It may likewise arise from various causes irritating the whole nervous system, or only the heart and arteries. Lastly, it accompanies many fevers, as well as most inflammatory disorders, whether the inflammation arises from a general stimulus applied to the whole body, or from the irritation of particular parts, by degrees extended over the whole body. In such a state of the circulation, the patient frequently stands in need of blood-letting, and almost always bears it well.

A *small, weak, and soft* pulse is generally owing to causes opposite to the foregoing, and indicates a contrary state of the circulation and nervous system. It frequently requires stimulants; nor does it generally require blood-letting, or easily bear it. Sometimes, however, a pulse of this kind is observed even in the case of a dangerous inflammation, of the stomach for instance, or intestines. But in these and the like examples, we ought to attend to the nature of the malady, much more than to the state of the pulse.

The pulse is said to *intermit*, when the stroke does not return after the usual interval, and perhaps not till after twice, thrice, or four times the usual space. A pulse of this kind seems to be almost natural and constant in some animals, and is common to some men even in the most perfect health; and if these happen to be seized with a fever, the pulse sometimes becomes equal, nor can the disease be removed until the intermission has returned.

Moreover, in some people, though the pulse beats equally while in health, yet the slightest illness makes it intermit; and in others, especially those who have a great deal of mobility in their constitutions, such as hypochondriac and hysteric people, the intermission of the pulse is felt, without applying the finger to the artery, merely by the uneasiness which they perceive in their breasts during those intervals in which the pulse is deficient. An intermittent pulse likewise occurs in many diseases of the breast, especially when water is collected in it; and the like happens in the end of all diseases, especially fevers, when the strength is nearly exhausted, and death approaches, of which it is frequently the forerunner.

An intermitting pulse therefore seems to arise from an unequal influx of the nervous power into the heart, or from the decay and exhaustion of the nervous power, by which means the heart is not able to contract till it has been distended beyond its due pitch. Or lastly, it may arise from diseases of the organ itself, or the neighbouring parts; from swellings, water, &c. pressing upon them, and impeding the action of the heart: which indeed is a very dangerous disorder, and almost always mortal.

It may not be amiss, in this place, to introduce Dr. George Fordyce's table of the pulse, which may not only convey to the reader that able physician's ideas on the subject, but serve also as a convenient guide to the young practitioner.

The indications of the pulse are of great importance in medicine; for by that we can judge of the state of the circulating system, the phenomena of diseases, the patient's strength or weakness, &c.

It indicates,	by	It is called
1. The strength of the contraction of the heart,	Strength,	Strong.
2. The quantity of blood thrown out at each contraction,	Weakness,	Weak.
3. The number of contractions,	Fulness,	Full.
4. The regularity of its action as to strength, quantity, or frequency,	Smallness,	Small.
5. The strength of the action of the arteries,	Frequency,	Frequent.
	Slowness,	Slow.
	Regularity,	Regular.
	Irregularity,	Irregular.
	Intermission,	Intermittent.
	Hardness,	Hard.
	Softness,	Soft.
	Redoubling,	Redoubling.
	Trembling,	Trembling.
6. The irritability of the vessels,	Quickness,	Quick.
	Regularity,	Regular.
	Slowness,	Slow.
7. The medium diameter of the arteries,	Dilatation,	Great.
	Contraction,	Small.
8. The quantity of blood in the vessels,	Oppression,	Oppressed.
	Smallness,	Empty.
9. The contraction of the capillaries,	Obstruction,	Obstructed.
	Freedom,	Free.

This table needs no explanation; yet it is in fact no easy matter, in many cases, to make the proper distinctions. In attempting to decide on the state of the pulse, it is of great importance, to know the usual pulsations of the patient when in health; as these differ materially in different subjects.

Many other variations of the pulse are enumerated by physicians, but most of them uncertain, and not confirmed by experience. We shall therefore now consider the motion of the blood, which may be either too great, too small, or irregular.

A *quick* pulse, *cæteris paribus*, produces a more rapid circulation, because the sooner that the ventricle of the heart is emptied, the more quickly is the blood thrown into the arteries; and their actions must answer to this stronger stimulus. Hence exercise, heat, stimulants, plethora, every kind of irritation, passions of the mind, and fever,

increase the circulation. The effect of this increase is a distension of the vessels, a stimulus applied to the whole body, an increase of heat, and often a debility. The secretion of sweat is increased while the other secretions are diminished, and the various functions of the body impeded; thirst comes on, the appetite is lost, the fat consumed, and a disposition to putrescency introduced. Sometimes the smaller vessels are burst; whence effusions of blood and hæmorrhages. But we are by no means to forget, that this violent motion of the blood, however hurtful it may seem, is among the best remedies made use of by nature in curing many diseases.

The motion of the blood is diminished, especially by debility, torpor, the want of irritation or of exercise: the same thing happens to all the humours, if there be any obstruction in the vessels, or any cause by which their return is hindered or rendered more difficult. Thus, from the very weight of the blood itself, if a person has stood long on his feet, the humours return more slowly from the inferior extremities. Any disease of the heart and arteries also, as an aneurism, contraction, ossification, must necessarily obstruct the circulation. The same thing happens from obstructions of the veins, or interrupted respiration, by which the passage of the blood through the lungs to the left side of the heart is impeded.

But, from whatever causes this diminution of the circulation takes place, the bad consequences are perceived chiefly in the veins, because in them the blood always moves more slowly than in the arteries. Hence varices, and congestions of blood, especially in those parts of the body where the veins are destitute of valves, and of consequence where the motion of the muscles cannot assist the circulation. Hence also arise dropsies from an impeded or languid motion of the blood; because the resistance of the veins being increased, the blood is received into them with the greater difficulty, and more of the thin humour is driven into the exhaling vessels, and by them deposited in such quantities as cannot be reabsorbed by the lymphatics. These diseases, as well as all others proceeding from defects of the circulation, are also more difficult of cure than others, because all the vital powers are weakened at the same time.

Another disorder of the circulation is where the blood is carried to one part of the body in too great quantity, by which means the other parts are deprived of their due proportion. This irregular distribution of the vital fluid frequently arises from a stimulus applied to the part itself, or to the brain, or at length acting on the mind, which, according to the laws of sympathy, produces a certain and definite distribution of the blood. It arises also not unfrequently from a spasm taking place in some other parts, which drives the blood out of its ordinary course.

In proportion to this irregularity of the circulation are the consequences; heat, swelling, redness, inflammation, rupture of vessels, hæmorrhages, effusions, destruction, corruption, and suppuration of

the cellular texture and adjoining parts, &c. Even this evil, however, Nature often converts into an excellent remedy; and physicians following her steps, frequently attempt to direct the distribution of the blood in particular diseases, well knowing that a change in the distribution of the blood is frequently efficacious either for radically curing some diseases or relieving their most urgent symptoms.

Lastly, some disorders in the motion of the heart itself, and those of no small consequence, remain yet to be taken notice of, namely, *palpitation* and *syncope*. A palpitation is a violent and irregular action of the heart, such as for the most part is perceived by the patient himself, and that not without a great deal of uneasiness and oppression at his breast; and is also manifest to the by-standers if they apply their hands, or look at his naked breast; the pulse of the arteries in the mean time being weak, unequal, and intermitting. This is a spasmodic disorder; and is induced by various causes affecting either the nervous system in general, or the heart in particular. Every disease of the organ itself, such as a constriction of its valves and blood-vessels, an ossification, enlargement, or polypus, hindering the free action of the heart, and evacuation of blood from it, are capable of exciting it to violent and unusual contractions. The same effect will also follow plethora, or too violent an impulse of the blood, &c. The heart will likewise frequently palpitate from a violent excitement of the nervous system, especially where the constitution is endowed with a great deal of mobility. Hence palpitations from any affection of the mind, and in hysteric women. Palpitation may likewise arise from an affection of the stomach, occasioned by worms, a surfeit, flatus, or stimulation by various acrid substances. It frequently also accompanies the gout when driven back, or even when a fit is coming on. Sometimes it arises from debility, whatever may be the cause; frequently from any difficulty in breathing; and many of these causes may be joined at the same time, or some of them produce others.

Hence we may see why the evil is sometimes slight and of short continuance; at other times altogether incurable, and certainly mortal in a longer or shorter time; why it sometimes returns at intervals, often coming on and being increased by every kind of irritation and exercise, and sometimes relieved or totally removed by stimulants or exercise.

A *syncope* is when the action of the heart, and, along with it that of the arteries, is suddenly and very much lessened: whence the animal powers, the senses, and voluntary motions, immediately cease. This may be produced by almost all the causes of palpitation; because whatever can disturb and disorder the motion of the heart, may also weaken or suspend it. The vitiated structure of the heart itself therefore, violent passions of the mind, whether of the depressing kind, or those which suddenly and vehemently excite, various kinds of nervous diseases, those of the stomach, every kind of debility and

evacuation, especially a great loss of blood, excessive and unremitting labour, long watching, heat, pain, many kinds of poisons, &c. produce fainting.

Hence we see, that whatever weakens the motion of the blood through the brain tends to produce fainting; and, on the contrary, whatever tends to augment that motion, also tends to refresh, and prevent the person from fainting. Hence also we see how the mere posture of the body may either bring on or keep off fainting, or remove it after it has already come on. We likewise see how this disorder may sometimes be of little consequence and easily removed; at others very dangerous, not only as a symptom, but even in itself, as sometimes terminating in death; and lastly, how it may be used as a remedy by a skilful physician, and artificially induced, either to free the patient from violent pain, or to stop an immoderate effusion of blood scarce to be restrained by any other method.

With regard to the *disorders of the blood* itself, it may be observed, that the glutinous part of it produces that buff-coloured appearance often seen upon blood drawn from people afflicted with inflammatory disorders, and even sometimes when no such diseases are present. This crust indeed is nothing else than the pure gluten of the blood taking longer time than usual to coagulate, by which means the red particles have an opportunity of falling to the bottom. This indicates no lentor, density, thickness, or tenacity of the blood, as was formerly thought; but rather its thinness, or at least a less tendency in it to coagulate. It arises for the most part from a violent agitation and conqassation of the blood within the body; and hence it accompanies many fevers, all inflammations, sometimes hæmorrhages, exanthemata, plethora, pain, and many irritations. It must, however, be allowed, that in several of these diseases it is rendered highly probable, at least from experiments apparently accurate, that the quantity of the gluten of the blood is really increased in the proportion which it bears to the other parts. This crust, however, is not always to be accounted morbid, as it often happens to the most healthy; and may even be produced or destroyed by the slightest causes while the blood is running from the vein, so that frequently we shall see a very thick and tenacious crust on the blood flowing into one cup, while that which runs into another has little or none at all. In general, however, the appearance of this crust shows, that the patient will bear bloodletting well, though those have been in a great mistake who directed this operation to be repeated till no more crust appeared on the blood.

The glutinous part of the blood also frequently produces those masses called *polypi*, which sometimes take place during life, but more frequently after death, in the large vessels near the heart, or even in the cavities of that organ. Similar masses also are frequently formed in the uterus, and are called *moles*.

The quantity of blood contained in a healthy body is very various, and difficult to be ascertained. Many diseases, however, may arise

from its being either too scanty or too abundant. *Too great a quantity of blood* is produced by the use of rich, nourishing diet, strong drink, accompanied with a good digestion; from a lazy, sedentary life, or much sleep, especially in those who have been formerly accustomed to much exercise; with many other causes of the same kind. It renders the person dull, weak, and languid, and sometimes almost totally oppresses him; nor are those organs destined for moving the blood sufficient for driving forward such a load. The pulse sinks, and sometimes a syncope, vertigo, or palpitation, takes place. More frequently, however, the vessels are too much distended, and ready to be thrown into violent and irregular motions. Hence a disposition to fevers, inflammations, an unequal distribution of the blood, unusual congestions, rupture of the vessels, and hæmorrhages. Moreover, by reason of the close connection between the sanguiferous and the nervous system, a fulness of blood produces a disposition to spasm and other diseases of that kind.

Hence we may understand why a *plethora* is sometimes accompanied with a weak and sometimes with a strong and hard pulse; why it is the cause, as well as a part of, so many distempers; why is the effect of a high state of health, &c.

The *want of a due quantity of blood* is no less pernicious than too great an abundance of it. It debilitates the person, and renders him unable to perform the proper offices of life; produces a languid circulation, syncope, spasms, and, at last, death itself. In a slighter degree of the disease the body is emaciated through want of nourishment, and its functions are vitiated in various ways. It may arise from want, bad food, or such as affords little nourishment: from bad digestion, or the chyle being hindered from passing into the blood: from fevers, or other diseases which exhaust the body and hinder nutrition: or lastly, from various evacuations, particularly of blood; and that the more especially if they are sudden, for in slow evacuations the vessels accommodate themselves surprisingly to the quantity left in them. Besides, if the body be slowly exhausted, the excretions are lessened by reason of the deficiency of the vital power; so that the unusual expence is easily compensated by the unusual retention. But if the evacuation happens to be very sudden and great, it may either prove mortal in a short time, or break the constitution to a degree beyond recovery.

By a great and long-continued deficiency of blood, the quality of it also is impaired; because the thin part of it is easily and soon made up; but the glutinous, thick, and red part, not so easily. Hence the blood becomes thin, pale, scarcely capable of coagulation, or of affording a proper support to the body. *Too great thinness of the blood* also proceeds from using much drink, especially of the aqueous kind, slender and little nourishing diet, a bad digestion in the stomach; from diseases of the lungs and those organs which elaborate the red part; or from suppression of the usual evacuations of thin humours, as sweat or urine, induced by cold, a fault of the secreting

organs, or by putrescency. But along with this, other disorders of the blood concur.

A too thin and watery blood makes the face pale, the body weak, languid, and torpid; the solid parts become flaccid from want of nourishment, and having too great a quantity of water in their composition. It brings on hydropic effusions of water in all parts of the body, by reason of the increased exhalation of that thin fluid which moistens all the inward parts; partly by reason of the blood itself being in some measure dissolved, so that it passes out of the vessels more easily and plentifully than it ought to do; and partly by reason of the vessels being relaxed beyond their usual pitch, and not making a proper resistance. Besides, in this case, the lymphatics are so far from absorbing more than usual, that, partaking likewise of the general debility, they are scarce sufficient for performing their proper offices.

Nature, however, has taken care, by the most simple means, to provide against so many and so great evils; for neither does the blood so easily become thin as some have imagined, nor when this quality takes place does it want a proper remedy. For almost instantly, if the person be otherwise in health, the excretions of the thinner matters are greatly augmented, and the whole mass of blood in a short time becomes as thick as formerly.

The opposite to this, namely, too great a *thickness of the blood*, though often spoken of by physicians, is very rarely if ever observed; and those fevers and inflammations which have been thought to arise from thence, are now found to originate from other causes. The following would seem to be the law of the human constitution. As soon as the blood has attained the due degree of thickness, or gone in the least beyond it, the excretions are either suppressed or diminished, the body attracts more moisture from the air, the person is thirsty, and drinks as much as is necessary for diluting the blood. But if water be wanting, and the person cannot satisfy his thirst, then the blood is so far from being thickened, that, by reason of a putrescency begun or augmented, it is much dissolved, becomes acrid, and is with difficulty contained in the vessels.

The *acrimony of the fluids* has afforded a large field for declamation to the speculative physicians, and upon this slender foundation many perplexed and intricate theories have been built. It is certain, indeed, that the blood in a state of health has some small share of acrimony; and this acrimony, from certain causes, may be a little increased so as to produce various diseases of a dangerous nature. This we are assured of from the increase of motion in the heart and arteries, and the similar augmentation of the action of the secretory organs, from acrid substances taken inwardly. The same thing also appears from the unusual acrimony of the secreted fluids in such cases, by which the vessels are sometimes greatly stimulated, and sometimes even quite eroded. Very many acrid substances, however,

are daily taken into the stomach; so that these must either be corrected in the *primæ viæ*, or changed by digestion before they pass into the blood; or at least by dilution with much water, or being blunted by an admixture with gluten, oil, or inflammable air, they must deposit much of their acrimony, and at last be thrown out of the body as noxious substances. Thus a vast quantity of salts, acid, alkaline, and neutral, may pass through the body, without in the least affecting the health; though these salts, if taken in very large quantity, undiluted, or not thrown out of the body, will do much hurt.

Moreover, even while life continues, putrefaction is going on, and produces much of that substance called *animal salt*; for into this a great part of our food is converted, and passes off by the urine. But if this putrescent disposition be too great, it will produce too large a quantity of animal-salt; especially if much of any saline substance is otherwise thrown into the body without proper dilution: and this kind of disease is well known to sailors who have been long at sea without having an opportunity of getting fresh provisions.

For this spontaneous putrescency Nature has suggested a proper remedy, namely, fresh meat, especially of the vegetable and acescent kind, and such as is well impregnated with ærial acid, which it may impart to the body. But where this kind of food is wanting, the putrefaction goes on apace, and a very great thinness and acrimony of the juices take place; especially if there be also a scarcity of water, or the excretions which ought to carry the putrid matters out of the body languish, either from cold, sloth, torpor, depressing passions of the mind, or from the constitution being broken by diseases; or lastly, from too great heat, which always favours putrefaction.

Besides, it would seem, that sometimes a disposition to putrefaction is much increased by the reception of a putrid ferment into the body; of which we have examples in some infectious fevers, where the contagion is very much assisted by heat, animal-diet, certain kinds of salts, debility, and nastiness.

Lastly, any single part of the body may putrefy from various causes, as from inflammation, gangrene, cold, &c. and thus may the whole body be infected; although, for the most part, the disease proves fatal before the corruption has spread over the whole body.

But when the mass of blood begins to putrefy greatly, it not only becomes very acrid, but thin also, so that it either will not coagulate at all, or shows only a slight and very loose crassamentum. Nay, even the red globules are broke down and destroyed; in which case it necessarily follows, that the blood must become very acrid, as well on account of the evolution of the salt, as by reason of the rancid and putrid gluten, which stimulates, and frequently even erodes, the vessels; producing spots, first red, then livid and black, tumors, and ulcers scarce possible to be cured, without first removing the putrescent disposition of the humours. From the same causes proceed hæmorrhages from every part of the body, hardly

to be restrained; a most intolerable fetor of the breath and all the excrements; the highest debility and laxity of the solids; the putrefaction acting as a poison to the nervous system, and at length bringing on death.

An acrimony of the acid kind never takes place in the human blood, nor in any of the humours secreted from it; though one of them, namely the milk, turns acid spontaneously in a very short time after it is drawn from the breast. Neither, indeed, does an alkaline acrimony ever seem to take place in the blood. Putrefcency indeed tends this way, and at last terminates in it; but scarcely while the person lives, though the nature of the urine, even while recent, seems to be but little distant from that of an alkali.

Many kinds of acrimony indeed may exist in the blood from too liberal an use of spices, wine, &c. but of these we know nothing certain. We well know, however, that the body is often infected with various kinds of morbid acrimony, which bring on many and dangerous diseases, as the small-pox, measles, cancers, lues venerea, &c. of which the origin and manner of acting are very little understood, though the effects are abundantly evident. In most cases, nature has taken no less care to provide against the *acrimony* than against the too great *thickness* of the blood. Sometimes an antidote is afforded, either by the excitement of thirst, that the acrid substance may be diluted with plenty of drink; or by increasing the evacuations, that it may be thrown out of the body; or lastly, by exciting various motions and actions of the vital powers, by which it may be either subdued, changed, rendered innocent, or expelled from the body by new and unwonted passages.

With regard to *respiration*, it may be obstructed from various causes seated either in the lungs themselves or the surrounding parts. But from whatever cause this obstruction may arise, it undoubtedly produces all those diseases which proceed from an interrupted circulation. The lungs themselves also being at length compressed, and not suffered to dilate sufficiently, cannot throw off the vapour which arises from them; and hence they are frequently oppressed with moisture. At the same time they are irritated, so that a greater quantity of mucus, and that of a thicker kind than usual, is secreted; by which means the passages through which the air enters them are stopped up, and a violent cough at length throws off the load.

The respiration is also subject to some other disorders, as a cough and sneezing; which, though at first sight they may seem very dangerous, are not destitute of use, and may even be reckoned among the most salutary attempts of nature to relieve the patient. Often, however, they are attended with danger, or very great uneasiness; namely, when they are either too violent or exerted in vain. At any rate, it is necessary for a physician to know the nature, causes,

and effects of these, that he may be enabled to promote them when necessary, to moderate them when too violent, and to stop them when noxious or to no purpose.

A *cough* is a violent, frequently involuntary, and sonorous expiration, suddenly expelling the air with great force through the glottis somewhat contracted. The convulsion of the muscles serving for expiration, gives a great force to the air, while the contraction of the glottis produces the sound. It is often long continued, being repeated at certain intervals, during each of which the inspiration is imperfect and obstructed by reason of the contraction of the glottis. It is excited by any kind of acrid substance, either chemically or mechanically applied to those passages through which the air enters. These are lined with a membrane so exceedingly delicate and impatient of stimulus, that it cannot even bear the touch of the mildest substance, such as a small drop of water, without throwing the muscles serving for expiration into a violent convulsion; the glottis at the same time contracting by means of the sympathy between it and the neighbouring parts. Thus the air is thrown out with such violence, that it drives the irritating substance along with it; and thus a cough becomes not only useful, but absolutely necessary for the preservation of life, as being able to free the lungs from every kind of irritating substance or foulness, which might soon bring on a suffocation. Hence a cough is almost an inseparable companion of every inflammation of the lungs, as well as every difficulty in respiration; and even frequently accompanies the entrance of the purest air when the trachea and bronchiæ are excoriated, or become too sensible. Examples also are not wanting, where a violent and troublesome cough has arisen from an irritation of the nervous system, or even of some particular part, of the ear, for instance, the stomach and intestines by worms, the liver by inflammation, &c.

Coughing may also be voluntarily excited, and may then be managed at pleasure. Even when involuntary, it may be moderated, or suppressed, by a contrary effort: though a violent fit of coughing cannot by any means be resisted. When it is once excited, the cough goes on till the irritating substance be expelled, or the sense of irritation abolished, or perhaps overcome by a more uneasy sensation than even the cough itself; after which, the irritation again returning at a certain interval, the cough also comes on. Hence we are taught a method of allaying and quieting this most troublesome malady, though frequently it is not in our power to remove the cause of it altogether.

A very violent cough is often dangerous. For by the retention of the breath, and the strong efforts made in coughing, a great quantity of blood is collected in the lungs, of which the vessels are distended, and frequently broken; and hence there sometimes happens a violent and even fatal hemorrhage. More frequently, how-

ever, it is the cause of a flower, though equally fatal disease. Nay, a frequent and troublesome cough, without any great hemorrhage, or even without any hemorrhage at all, may damage the lungs to such a degree, especially if they be of a more tender structure than usual, as to lay the foundation of a phthisis almost always incurable.

Again, by a long-continued and violent cough, the passage of the blood through the lungs being impeded, it must necessarily flow through the veins towards the head: hence redness and lividness in the countenance, hemorrhages, palfies, apoplexies, and sometimes mortal convulsions. Lastly, by a violent cough the abdominal viscera are perpetually compressed with remarkable violence; and if any part happens to be weaker than usual, a hernia, prolapsus uteri, abortion, or similar accidents, may happen.

Even when the cough is more gentle, if it happens to be importunate and frequent, although we have nothing of this kind to fear, yet the patient is by no means free from danger; as he is thereby agitated, fatigued, has his constitution broken, is deprived of rest, has a fever brought upon him, his lungs are shaken and irritated, digestion and all the other functions are impeded, till at last he sinks under a complication of maladies.

Sneezing is somewhat akin to cough, as consisting of a very full inspiration, to which succeeds a most violent expiration, by which the air is driven out through the nostrils with immense violence, and sweeps the passage through them as it goes out. It is a convulsion much more violent than a cough, and is besides very difficult to be stopped when once a propensity to it has taken place. As a cough proceeds from an irritation of the glottis, trachea, bronchia, and lungs, so sneezing arises from an irritation of the membrane of the nostrils, but rarely from sympathy with any distant part. It is sometimes of service, as well as a cough; though it is also sometimes prejudicial, for the reasons which have been already assigned.

The last subject necessary to be taken notice of here, is that of the diseases arising from a bad digestion, disordered motion of the intestines, and some of the principal secretions. The first of these are sometimes very troublesome, though seldom dangerous. The principal symptoms are oppression, anxiety, pain at the stomach; eructations, by reason of air extricated from the fermenting aliments, and irritating the stomach; nausea and vomiting, from the irritation and distension of the same organ; the belly sometimes too costive, and sometimes too loose; a defect of nourishment: a general debility; relaxation of the solid parts; too great thinness of the fluids; all the functions impeded; pain of the head; vertigo, syncope, asthma, palpitation; great sinking of the spirits, especially if the patient has been of a peculiar constitution; sometimes the gout, sometimes a dropsy, or a slow fever which may prove mortal.

The motion of the intestines may be either too great or too little; and hence proceeds either *costiveness* or looseness. The former is frequently not to be accounted morbid; but, when it is, it may arise from the structure of the intestines being injured, or from their being shut up or obstructed by spasm or otherwise, or from a deficiency of those humours which moisten the intestines; or it may arise from mere debility, from a palsy of the fibres perhaps, or from a deficiency of the usual stimulus, of the bile, for instance, or from too dry or slender a diet.

The consequences of long-continued costiveness, are first an affection of the alimentary canal, and then of the whole body. The stomach is diseased, and does not digest the aliments properly; the whole body is left destitute of its usual stimulus; the blood is corrupted, perhaps from the resorption of the putrid matter into it. The circulation through the abdominal viscera is impeded; hence frequent and irregular congestions, varices of the veins, hemorrhoids, &c. Nay, the intestines themselves being overloaded, distended, and irritated by an heavy, acrid, and putrid load of aliment or other matters, are excited to new and unusual contractions, which, if they do not get the better of the obstruction, bring on tormina, colic, or an iliac passion, inflammation, and gangrene, fatal in a very short time.

Looseness, or diarrhœa, is a malady extremely common; being sometimes a primary disease, and sometimes only a symptom or an effect of others. Sometimes it is a salutary effort of nature, such as the physician ought to imitate and bring on by art. It is also familiar to infants, and to people of a certain constitution; and to them costiveness is very prejudicial. It may arise, in the first place, from something taken into the body, or generated in the intestines; from a fermentation and corruption of the mass of aliments; from the bile being abundant and acrid, or from blood or pus poured into the intestines; from the intestines themselves being eroded, or deprived of their natural mucus; from the humours being driven from the surface of the body towards the inward parts, as by cold, especially when applied to the feet; or from a general corruption of the whole body, as in the phthisis, hectic, or putrid fever, especially towards the end of these disorders. In fevers it is sometimes salutary, or even puts an end to the disease altogether, or at least renders it milder: more frequently, however, deriving its origin from putrescency, it is of no service, but rather exhausts the strength of the patient. A diarrhœa likewise, almost incurable, and often mortal in a short time, frequently arises after the operation for the fistula in ano. Some have their intestines so extremely weak and moveable, that from the slightest cause, such as catching cold, any violent commotion of the mind, &c. they are subject to a violent diarrhœa. Lastly, whatever be its origin, if it hath continued for a long time, the viscera are rendered so weak and irritable, that the disease, though often re-

moved, still returns from the slightest causes, and even such as are not easily discovered.

A diarrhœa proves very pernicious, by hindering digestion and the nourishment of the body; for the stomach is commonly affected, and the aliments pass through the intestines so quickly, that they can neither be properly digested, nor are the lacteals able to absorb the chyle from them as they go along. Such a violent evacuation is also hurtful by exhausting the body, and carrying off a great quantity of the nutritious matter from the blood. Neither, indeed, is it only the alimentary mass which is thrown out sooner than it ought to be; but at the same time, a great quantity of the fluids secreted in the intestines, so that the whole body quickly partakes of the debility.

Sometimes a violent and long-continued diarrhœa rises to such a height, that the aliment is discharged with little or no alteration. Sometimes also, though rarely, from a similar cause, or from the obstruction of the mesenteric glands, and its other passages into the blood, the chyle itself is thrown out like milk along with the excrements; and this disease is called the *fluxus celiacus*.

A *dysentery* is attended with very severe gripes in the belly, a frequent desire of going to stool, and vain efforts which excrete nothing besides the mucus of the intestines mixed with a little blood; and is accompanied with excessive debility, and frequently with putrescency and fever. It is thought to arise from the constriction of some part of the intestines, of the colon especially: by which means the bowels, though ever so much irritated, can pass nothing; neither can the disease be removed until the belly has been well purged by proper medicines.

A *tenesmus* is a frequent and insatiable propensity to stool, without being able to pass any thing, notwithstanding the most violent efforts. It may be occasioned by any kind of irritation, either of the rectum itself or of the neighbouring parts, by acrid substances taken into the body; by some of the stronger purges, especially aloes, which is very difficult of solution, and will pass even to the rectum with very little alteration; by a violent and obstinate diarrhœa, dysentery, hæmorrhoids, worms, fistula, calculus, ulcer in the bladder, urethra, &c. It is often very pernicious, both from the excessive uneasiness it occasions to the patient, and from its exhausting his strength, by the frequent and vain efforts bringing on a prolapsus ani, and communicating the violent irritation to the neighbouring parts, as the bladder, &c.

A *nausea and vomiting* are disorders very common, and owing to almost innumerable causes; not only to affections of the stomach itself, but also to affections and irritations of the remotest parts of the body which may act upon the stomach by sympathy. Every irritation and distension of that viscus therefore, a load of crude

aliment, an obstruction about the pylorus, all acrid substances taken into it, diseases of the liver, intestines, kidneys, uterus, the head, the feet, the skin, or indeed the whole body, inflammation, the stone, king's evil, scirrhus, apoplexy, compression of the brain, fracture of the skull, vertigo, syncope, violent pain, the gout, especially when repelled, fevers, passions of the mind, disagreeable imaginations or discourses, frequently induce nausea and vomiting.

These affections are often serviceable by freeing the stomach from something with which it was overloaded; promoting spitting in some cases where the lungs are overcharged with mucus, blood, pus, or water; producing sweat, and a free and proper distribution of blood to the surface of the body; partly, perhaps, by the great straining which accompanies vomiting, but rather by that wonderful sympathy which takes place between the stomach and skin: and hence, in many diseases, vomiting is a most excellent remedy. It is, however, in some cases hurtful, if too violent or too frequently repeated, partly by debilitating and making the stomach more easily moved; and partly by fatiguing the patient with violent strainings, which occasion hernias, abortions, &c.

Sometimes we find the motion of the intestines totally inverted, from the anus to the mouth; a most dangerous distemper, which hath obtained the name of the *iliac passion*. It most frequently arises from some obstruction in the alimentary canal hindering the descent of the excrements, as scirrhus, spasm, inflammation, &c.: though the most perfect iliac passion takes place without any obstruction, so that clysters will be vomited; and even after this has continued for several days, the patients have at length recovered.

A slighter degree of the iliac passion, namely the inversion of the peristaltic motion of the duodenum, always takes place in long continued and violent vomiting, as in sea-sickness, or when a person has taken too large a dose of an emetic; by which means a vast quantity of bile frequently ascends into the stomach, and is discharged by vomiting.

An excessive vomiting with looseness is called a *cholera*, when the matter discharged has a bilious appearance. It arises from a very great irritation of the alimentary canal without any obstruction; and is for the most part occasioned by too great a quantity, or from an acrimony of the bile, from whence it takes its name. It may originate from several causes, as too strong a dose of an emetic and cathartic medicine, eating too great a quantity of summer fruits, &c. and is a very violent malady, often killing the patient in a few hours, unless proper remedies be applied in time.

From a suppression of any of the secretions, or a disorder of any of the secretory organs, many mischiefs may arise. A *diminution of perspiration* produces plethora, lassitude, languor, depression of mind, bad digestion, loss of appetite, and even a general corruption of the

humours from the retention of such a quantity of putrescent matter. —The more suddenly the diminution or suppression of the perspiration takes place, the sooner the mischief is produced, and the greater it is; not only by retaining the matter which ought to be thrown out, but by repelling the humours from the surface of the body, and directing them to other parts; whence fevers, inflammations, congestions of the blood, &c. frequently take place.

Thus suppression of perspiration may arise from many different causes; as from cold suddenly applied to the body when very hot; sometimes from very violent passions of the mind; or from spasmodic diseases, as the hysterics, &c. It may be suppressed also by that kind of constriction of the vessels of the skin which is produced by various kinds of fevers, the nature of which has hitherto been but little known.

Excessive perspiration or sweating is injurious by debilitating the body, relaxing the skin, and exposing the patient to all the evils which arise from catching cold. It may even be carried to such a height as to produce fainting and death; though, it must be owned, that we cannot easily bring examples of people having from this cause their blood inspissated, corrupted, or being thence made liable to inflammations and fevers.

A suppression of urine is still more dangerous than that of perspiration, and unless relieved in a short time will certainly prove fatal. This disorder, which is called *ischuria*, may arise from various diseases of the kidneys, ureters, bladder, urethra, &c. Thus any obstruction or irritation of one or other of the kidneys or ureters, by a stone, gravel, mucus, blood, inflammations, spasm, supuration, scirrhus, swellings of the neighbouring parts, &c. may either prevent the urine from being secreted, or may give rise to a scanty or depraved secretion, or finally may obstruct its passage into the bladder after it is secreted.

The urine also, after it has entered the bladder, is there frequently suppressed, by reason of various disorders to which that organ is liable, as an irritation or inflammation, spasm, acrid substances injected, or sympathy with the neighbouring parts; or by reason of the texture of the bladder itself being destroyed, or from a palsy, scirrhus, ulcer, &c. in the bladder. Or, lastly, the urine may be retained in the bladder from a general stupor, as from a disease of the brain, which happens in some fevers, when the patient is neither sensible of the usual stimulus, nor even of one much greater, so that the fibres can scarcely be excited to contraction by any means whatever. This, in fevers, is always a bad sign, and sometimes even proves fatal.

A suppression of urine for any length of time produces an immense distension of the bladder, oppression, uneasiness, and pain, not only of the part itself, but of the surrounding ones, and even of the whole body; a spasm, or insuperable constriction of the

sphincter; an inflammation, gangrene, or laceration of the bladder itself; a violent irritation of the whole habit; then a nausea, vomiting, vertigo, general stupor, and an impregnation of the whole mass of blood with a humour of an urinous nature, which at last being poured out into various cavities of the body, especially of the head, soon brings on a deep sleep, convulsions, and death.

From the same causes, but acting with less force, proceeds that disease called a *dysuria*, when the urine passes with difficulty and pain, and is frequently red, black, bloody, purulent, mucous and sandy; the reason of all which appearances is very much unknown. —The most frequent complaint, however, in making water, is where the patient has a continual and violent desire of passing his urine, while at the same time only two or three drops can be passed at once, and that not without some pain. This is occasioned, even in healthy people, by some acrid substance taken into the stomach; and is very common to old people, who are generally subject to disorders of the kidneys and bladder. It arises also frequently from a stone irritating the bladder, or from an inflammation of it, or its being deprived of its mucus, or this last being somehow or other corrupted; or lastly, from certain diseases or some particular state of the neighbouring parts, as of the uterus, vagina, urethra, prostate gland, &c.

Akin to the stranguy is an incontinence of urine, when the patient's water either comes away against his will, or altogether without his knowledge. This disorder may arise from debility, palsy, an ulcer or wound, or any long-continued and violent irritation of the bladder, especially of its sphincter, as from a stone, a general palsy, or in females, difficult labour injuring the neighbouring parts.—This symptom occurs in a great number of diseases, especially in the hydrocephalus.—Sometimes the urine is expelled with violence, either by reason of universal spasms, or by violent contractions of the muscles of respiration, as in sneezing, laughter, &c.

Among the disorders incident to the urine we may reckon the production of calculi, which frequently bring on the most excruciating and dangerous diseases.—The urine, besides the water and salts, contains no small share of the glutinous part of the blood already somewhat corrupted, and still inclined to farther corruption. Hence the urine even of the most healthy people deposits a sediment after it has stood for some time; and though none of this sediment be formed in an healthy body, yet if the smallest particle of foreign matter be introduced into the bladder, a crust soon gathers round it, and it is sure to become the basis of a stone, which by degrees grows to a very great size. It is not unlikely, also, that some unknown fault of the fluids may contribute to the production of those calculi, as the stone is well known to be an hereditary disease, and to be born with the patient. Calculous persons also are commonly

subject to complaints of the stomach, especially to an acidity of it; and many have received no little relief from alkalescent or alkaline medicines.—From the same causes may calculi be formed in the kidneys; from which proceed a horrid train of symptoms described in the subsequent part of this treatise.

It is now found by accurate experiments of the most able chemists, that urinary calculi do not, as was once supposed, consist almost entirely of an earthy matter. Their principal constituent is a peculiar acid approaching more nearly to the phosphoric found in the bones than to any other. But the acid of calculus being in some respects peculiar in its nature, has among modern chemists obtained a peculiar name, and been distinguished by the appellation of the *lithic acid*. It is highly probable that this acid present in the circulating mass, is precipitated and disengaged by the introduction of other acids, and thus thrown off in greater quantities by the kidneys. Thus then we can understand the influence of acids as tending to the generation of calculus, and of alkalies as tending to prevent it.

The last disorder here to be taken notice of is a disorder of the glands themselves, owing to some kind of obstruction, and is one of the most dreadful diseases incident to human nature. Hence happens a great swelling and surprising hardness, not only without pain, but sometimes even with a diminution of sensation in the part affected; and when the gland is thus affected, it is called a *scirrhus*. Sometimes it remains in this state for a long time; but sooner or later produces the most excruciating torment. By degrees it is infected with a slow and malignant suppuration, degenerating into an horrid ulcer, consuming not only the part itself, but eating away the neighbouring ones, and corrupting the whole body with the most acrid and incurable poison. This disease is called a *cancer*, of which the causes are very little known.

With the organs in both sexes concerned in the function of generation, and of that function as far as we yet know any thing respecting it, the anatomist must be already well acquainted; and after what has been said of the different functions, and of the morbid affections, to which these are subjected, we may extend our remarks on the theory of medicine, with mentioning the remarkable versatility of the human constitution; which, more than that of any other animal, is capable of accommodating itself to every climate and to all kinds of diet. Hence it is probable that a large proportion of the diseases to which we are subjected are produced by ourselves.

WE have thus far proceeded in our task under the able guidance of DR. JAMES GREGORY, but we should by no means consider ourselves as having completed it, were we not to subjoin the luminous and celebrated opinions of the great DR. CULLEN,

who divides the theoretical part of Medicine into three general heads. *Physiology*, which treats of that condition of the human body necessary to life and health; *pathology*, which delivers the general doctrine of diseases; and *therapeutics*, which delivers the general doctrine concerning the means of prevention and cure. We shall in this place confine ourselves to the two first.

§ 1. In treating of Physiology, that great physician first considers the solid matter of which our bodies are composed, and which he calls the *simple solid*. Here he differs remarkably from BOERHAAVE; for the latter, following the doctrines of the chemists, asserted, that the original stamina of the human body are fibres composed of earthy particles cemented together by a kind of glutinous matter. This cementation is denied by Dr. Cullen, who very justly observes, that nothing can be deduced from the chemical analysis of these solids, unless we were able to recombine them from the principles to which they are reduced by chemical operations.—All that we can know, therefore, with regard to our solid parts, is, that they are formed of water, and a certain matter concreting along with it. The brain is that part of the human body which is first formed; and therefore, he is of opinion, that it is the principal or chief organ, upon which the welfare of the body depends. The original stamina of the body, he also supposes to be fibrous; and differs from other physiologists, who suppose it totally to consist of cellular texture. This last, he thinks, is super-added to the fibres. How the nutritious matter is applied to the fibres, in order to extend them in length, or to form a cellular texture on their surface, he declares himself unable to explain. “It is probable, however,” says he, “that for a certain time, at its first beginning, the growth of animal bodies proceeds in the same manner as that of vegetables: but it is evident, that, at a certain period, in the growth of animals, a different economy takes place; and that afterwards the growth seems to depend on an extension of the arteries in length and wideness by the blood propelled into them. It may be supposed that this extension of the arteries is applied to every fibre of the body; and that, by the extension of these, it gives an opportunity for the application and accretion of the nutritious matter, to the growth therefore of the fibre itself, and to the growth of cellular texture on its surface. Perhaps the same extension of the arterial system gives occasion to the secretion of fluids, which, poured into the cellular texture already formed, according to the disposition of these fluids to concrete more or less firmly, gives the different degrees of hardness or density to be observed throughout the body.

“By this extension of the arterial system, the several parts of the body are gradually evolved, some of them sooner, others later, as by the constitution of the original stamina, or after occurrences, they are severally put into such conditions as render them less ex-

posed to the impetus of the blood, and fitted to receive a greater quantity of it. But as the parts by these causes first evolved will increase the most in the density of their solid parts, they will therefore more and more resist their former growth; and by the same elasticity will detain the blood with more force and in greater quantity into the parts then not so far evolved. Hence the whole system will be at length evolved; and every part of the solids will, in respect of density and resistance, be in balance with every other part, and with the forces to which they are severally exposed.

“The extension of the arteries depends upon the resistances which occur to the free transmission of the blood through them; and further, from a resistance in the veins. For as a considerable portion of the blood does not commonly pass into the smaller branches of the arteries, but must pass very entirely into the veins; so these, by their capacity constantly diminishing as they approach nearer to the heart, and by their coats being of a density and firmness sufficient to prevent further dilatation, considerably resist the free passage of the blood from the arteries into them.

“While these resistances continue, the arteries, and with them almost every fibre of the body, must be extended at every systole of the heart, and with this extension the growth of every part will proceed; but as every part, by its receiving an addition of solid matter, becomes more dense and rigid; so it is less easily extended, and perhaps less readily receives an accretion of new matter than before. Hence it is, that the more the body grows, it admits of any additional growth the more slowly; and unless the extending powers increase in the same proportion with the increasing density of the solids, there must be a period at which these two powers will balance each other, and the growth will proceed no farther. But as it is evident, that the bulk and weight of the heart, and probably therefore its force, does not increase with the increasing bulk of the body, and that the action of the heart is the principal extending power in the system; it is also plain, that the extending power does not extend in the same proportion with the increasing density of the solids; and therefore that these two powers will, at certain period, come to balance each other.

“But not only is the force of the heart thus constantly diminishing with respect to the resistance of the arteries, but, though this force were still subsisting, it has, from other causes, less effect in extending the arteries. The blood is more confined in the arteries, and extends them further in proportion to the resistance of the veins; and this resistance in the veins, and extension of the arteries depending upon it, will be more or less according to the respective density of these two sets of vessels. But it appears from the experiments of Sir Clifton Wintringham, that the density and firmness of the veins with respect to their corresponding arteries is much greater in young animals than in old ones: and

thence it appears, that, during the growth of animals, the arteries are acquiring an increase of density in a greater proportion than the veins are at the same time; and therefore, that the resistance in the veins with respect to the arteries must be constantly diminishing; that the veins will therefore receive a greater proportion of blood; that in the same proportion the arteries will be less extended; and lastly, that the diminished resistance in the veins concurring with the diminished force of the heart, will the sooner bring the increasing rigidity of the arteries, and therefore of every fibre in the body, to be in balance with the extending powers; at least so far as to prevent their producing any farther growth.

“ This account of the change of the resistance in the arteries and veins, with respect to one another, is agreeable to phenomena, which shew that the arteries are larger, and contain more blood in proportion to the veins, in young animals than in old; that arterial hæmorrhages occur most frequently in young persons; and that congestions in the veins with hæmorrhages, or hydroptic effusions depending upon them, occur most frequently in old age.

“ It is probable, that the resistance both of arteries and veins goes on increasing, while the force of the heart is not increased at the same time: but it appears also, that from the diminishing force of the heart, and the compression which the smaller vessels are exposed to from the distension of the larger, the action of the muscles, and other causes, the number of small vessels, and therefore the capacity of the whole system, is constantly diminishing so much, that the heart may still for some time be sufficient for the circulation of the blood. But while the resistances in the vessels are constantly increasing, the irritability of the moving fibres and the energy of the brain are at the same time constantly diminishing and therefore the power of the heart must at length become unequal to its task, the circulation must cease, and death ensue.

“ The unavoidable death of old persons is thus in part accounted for; but it is, however, still probable, that the same event proceeds chiefly from the decay and total extinction of the excitement or vital power of the nervous system, and that from cause very much independent of the circulation of the blood, and arising in the nervous system itself, in consequence of the progress of life. This seems to be proved by the decay of sense, memory, intellect and irritability, which constantly takes place as life advances beyond a certain period.”

Thus the nervous system is represented as the substratum or fundamental stamina of the whole body; and indeed, as the author explains it, our whole frame is so made up of nerves, that the body may be said to contain nothing else. The nervous system he divides into four parts. 1. The medullary substance contained in the cranium and vertebral cavity; the whole of which seems to

consist of distinct fibres, but without the several fibres being separated from each other by any evident developing membranes.

Connected with one part or other of the above substance are the nerves, in which the same medullary substance is continued; but are more evidently divided into fibres, each of which is separated from the others by an enveloping membrane derived from the pia mater. 3. Parts of the extremities of certain nerves in which the medullary substance is divested of the enveloping membranes from the pia mater, and so situated, as to be exposed to the action of certain external bodies, and perhaps so framed, as to be affected by the action of certain bodies only. These he calls the *sensitive extremities* of the nerves. 4. Certain extremities of the nerves, so framed as to be capable of a peculiar contractility, and in consequence of their situation and attachments, to be, by their contraction, capable of moving most of the solid and fluid parts of the body. These he calls the *moving extremities of the nerves*; they are commonly called *moving* or *muscular fibres*. The proof of this last position we shall give in his own words.

“The inherent power (or contractility of the muscles) is supposed to be more vigorous, moveable, and permanent, in certain muscular fibres than in others.

“The inherent power, or the contraction dependent upon it, can be excited by certain applications, made either to the muscles themselves, or to the nerves connected with them; and in either case, the effects of such application are so exactly the same as to allow us to conclude that the matter of the nerves and of the muscular fibres is of the same kind.

“The muscular fibres are sensible to various impressions, and are otherwise organs of the sensations of consciousness. From this also it is presumed, that the muscular fibres consist of the same matter which is the subject of sense in other parts of the nervous system.

“From the two last and other considerations, we think it probable, that the muscular fibres are continuations of the medullary substance of the brain and nerves, as before alleged.

“Though the muscular fibres consist of the same kind of matter as that in the nerves, the latter shew no contractility, because they have not the peculiar organization of the former.”

Some physiologists, particularly Haller, have endeavoured to prove, that the muscles have a power of motion independent of that which they receive from the nerves; these our author refutes by some experiments which prove, that both of them continue for an equal length of time, and that when the nerve is irritated, the muscle contracts, even after death, in the same manner as though the muscular fibres themselves were irritated.

The doctor next endeavours to shew, that the force of contraction and of the muscular fibres are the same. His words are,

“As the force of cohesion in the muscular fibres of living animals is much greater than in those of dead ones, it is probable from this and other considerations, that the cause of muscular contraction is an increase only of that same power which gives the contractility of the simple solids, and of other inanimate elastics. *Haller Prim. Lin.* 407, 408.

If this is true, it will also explain why the force of cohesion in muscular fibres is greater than that of the medullary fibres in any other part of the nervous system, though both kinds of fibre consist of the same kind of matter. The power above mentioned he conjectures to be an elastic fluid, the motions of which are excited in the nerves, and by their means accumulated in the muscles. The excitement of the fluid in some measure is what is properly called *life*, at least as far as that is corporeal; and its *collapse*, or some diminution of its motion, produces sleep, fainting &c. or if the collapse is total and irrecoverable, death itself.

With regard to this nervous power, the doctor absolutely denies that it is secreted from the blood. “The most common opinion,” says he, “is, that the brain is a secretory organ, which secretes a fluid necessary to the functions of the nervous system, that this fluid is alternately exhausted and recruited, and thereby gives occasion to the alternate states of sleeping and waking. But this supposition is attended with many difficulties. 1. It is probable that the nervous fluid existed in the animal embryo before the action of the heart, or any secretory function, could take place. 2. In animals which during the winter suffer a temporary death, when, by heat, they are again restored to life, the vital power of the solids is restored before the fluidity of the blood. 3. The nervous fluid subsists in the nerves and muscular fibres long after they are separated from the brain, and often when cut into small parts. 4. Though it be true that the brain is a secretory organ, the fluid may be destined to another purpose; and, so far as we understand that purpose, the fluid fit for it must be unfit for the purposes of sense and motion. 5. There is no appearance, in any part of the nervous system, of provision made for an occasional accumulation of the secreted fluid; nor is there any evidence of its actually taking place. 6. The phænomena of sleep and waking do not correspond with such a supposition; as sleep often takes place when the secreted fluid must be copiously present, and waking can be protracted when the fluid is exhausted much beyond its usual measure. 7. Both states are induced by many causes which can hardly be supposed to act upon a secretion.

Certain compression of the brain can produce a state of the system resembling sleep: but that state is in some respects different from that of ordinary sleep; and it does not by any means appear, that natural and ordinary sleep depends upon any compression of the brain.

“As it is therefore probable that sleep and waking do not depend upon a different quantity of the matter of the nervous fluid for the time present in the system, or upon any causes interrupting its motion, while the condition of the matter remains the same, we are disposed to believe, that those states of sleep and waking depend upon the nature of the nervous fluid itself, capable of becoming more or less moveable; that it is chiefly in the brain susceptible of these different conditions; and that especially by its condition there; it has its more general effects on the system.”

Speaking afterwards of the *nutrition of the body*, he says, “From the fibrous parts being evidently, in most instances, parts of the nervous system, and from the gradual formation of the fœtus, in which the nervous system is first formed, we think it probable, that the whole of the fibres in the different parts of the body, are a continuation of the nerves; and this again will lead to the conclusion, that the nourishment of the soft and homogeneous solids every-where is conveyed to it by the nerves.

“This supposes also, what is otherwise probable, that the cortical part of the brain, or common origin of the nerves, is a secretory organ, in which the gluten of the blood being freed from all saline matter before adhering to it, becomes fit for the nourishment of the solids, and being poured in a sufficiently diluted state upon the organ of the nerves, it is filtrated along the fibres of these; and is thus conveyed to every staminal fibre of the system. We suppose, at the same time, that the medullary, or what may be called the *solid matter of the nerves*, is, in the living body, constantly accompanied with a subtile elastic fluid, which fits them for being the organs of sense and motion, and which probably is also the means by which the nutritious fluid is carried on in the substance of the nerves from their origin to their extremities.

By this system, the blood and its circulation, instead of being the principal or vital function, as it was reckoned by Hervey and others, becomes so much a secondary in the animal economy, that it answers little other purpose besides the nutrition of the body. It hath been objected, however, that this fluid is, somehow or other, of the utmost consequence; since a stoppage of the circulation, or a wound in the large vessels about the heart, proves instant death, without waiting for any consumption of the body by reason of its want of nourishment. This our author explains by reminding us, that the vessels must necessarily be in a certain state of distension, in order to the mobility of the nervous fluid. The evacuation of all the blood causes an irretrievable collapse of the vessels, and consequently of the nervous fluid; upon which death immediately takes place.

It would be mere repetition here to enter into any particular discussion concerning the manner in which each of the functions of

the animal economy are performed. These may be seen in the preceding pages, or may be consulted as they occur in HALLER. What we have already taken notice of will be sufficient to make this theory of diseases quite intelligible.

§ 2. From the sketch we have given of Dr. Cullen's physiology, it may easily be imagined that the distinguishing characteristic of his PATHOLOGY will be, that almost all diseases are the consequence of an affection of the nervous system. The nervous power, he thinks, is the same with what Hippocrates called *Nature*, and to which he ascribed such efficacy in removing diseases. This subject, however, the latter did not prosecute to any good purpose, and his followers still less. Erasistratus took no notice of it; and though Galen ascribed an active power to what he called *Nature*, yet he considered this as chiefly concerned in the support of health and the cure of diseases, and referred the operations of nature in the cure of diseases to the solids and fluids. In the 15th and 16th centuries the restorers of physic for a long time overlooked the nervous power; and though the chemists introduced their doctrines with regard to the fluids, yet they acquiesced in the former doctrine, which ascribed to them the ultimate power of the animal economy. Van Helmont, indeed, proposed a very considerable change by his doctrine of the *archæus*; maintaining, that the motion of it had a greater share in the production of diseases than the causes assigned by the chemists and Galenists. But this doctrine was delivered in such an obscure and fanciful manner, that no notice was taken of it; and people continued to imagine that diseases consisted in a certain *intemperies* of the fluids, and that *fever* particularly consisted in a preternatural heat. After the discovery of the circulation, Sylvius de la Boe asserted, that fever proceeded from an increased velocity of the blood, and that an increased quickness of the pulse was its pathognomic. This, however, we are not to admit as true, because then the cure of fevers would consist only in diminishing the velocity of the blood, which is very easily done; yet sometimes it is necessary to increase this velocity, in order to cure the fever. To this doctrine Bellini and Boerhaave added the doctrine of acrimony and a *lenter* or viscosity in the blood; and this theory continued to be followed till the time of Cullen. Hoffman considers fevers as entirely consisting in a change of the state of motion in the muscular fibres, which undoubtedly depends on that of the nervous system. The particular cause is a *spasm* in the extreme arteries; and the cure consists in a relaxation of that spasm, without regarding the fluids, but only so far as they affect the nervous system.

The following are the *general phenomena of fevers*, as laid down by Dr. Cullen. The person is affected first with a languor, or sense of debility, inactivity, and sluggishness. The face and extremities become pale; the features shrink; the bulk of every

external part is diminished, and the skin all over the body appears constricted as if by cold. A coldness of the extremities may now be perceived by another person, though the patient himself takes little or no notice of it. At length the cold becomes also perceptible to him; first, commonly in his back, and thence passing over the whole body; though now his skin frequently feels warm to another person. The sense of cold continually increases, and at length produces a tremor in all the limbs, with frequent successions or rigors of the trunk of the body. When this sense of cold and its effects have continued for some time, they become less violent, and alternate, with warm flushings. By degrees the cold goes off entirely, and a heat greater than in a natural state prevails all over the body. With this heat the colour of the skin returns, and a preternatural redness appears, especially in the face. With the heat and redness the skin is relaxed and smoothed, but for some time it continues dry. The features of the face, and other parts of the body, recover their usual size, and even become more turgid. When the heat, redness, and turgescence, have increased and continued for some time, a moisture appears upon the face, which, by degrees, becomes a sweat, and at length prevails over the whole body. As this sweat continues to flow, the heat of the body abates; the sweat, after continuing some time, gradually ceases; the body returns to its usual temperature, and most of the functions are restored to their ordinary state.

From these general appearances, the paroxysm may be divided into three different stages, viz. the *cold*, the *hot*, and the *sweating*, stages or fits; in each of which a considerable change happens to several of the functions.

On the first approach of languor, the pulse sometimes become lower, and always weaker, than before; and as the sense of cold comes on, it becomes smaller, very frequent, and often irregular. As the cold wears off and the heat comes on, the pulse becomes more regular, hard, and full, and in these respects increases till the sweat breaks out. As the sweat flows, the pulse becomes softer and less frequent, until the sweat ceasing altogether, it returns to its usual state. The respiration during the cold stage is small, frequent, and anxious; as the hot stage comes on, it becomes milder, and more free, but is still frequent and anxious, till the flowing of the sweat relieves the anxiety, and renders the breathing less frequent. On the approach of the cold stage, the appetite ceases, and does not return till either the paroxysm is at an end, or the sweat has flowed for some time. Generally, however, during the whole paroxysm, there is not only a want of appetite, but an aversion from all solid food, especially of the animal kind, as the cold stage advances, nausea and vomiting frequently come on, with the discharge of a matter for the most part bilious; but when the hot stage is pretty well advanced, this sickness abates,

and commonly goes off altogether when the sweat breaks out. A considerable degree of thirst is commonly felt during the whole course of the paroxysm. In the cold stage it seems to arise from the dryness and clamminess of the mouth and fauces; and during the hot stage, from the heat which then prevails: but, as the sweat flows, the mouth becomes more moist, and the thirst, together with the heat, gradually abates.

In the course of the paroxysm, a considerable change is also made in the state of the secretions. The circumstances already mentioned shew it with regard to the saliva, and it is still more remarkable with regard to the urine. In the cold stage, the urine is almost colourless, and without cloud or sediment. In the hot stage it becomes high coloured, but is still without sediment. After the sweat has flowed freely, the urine deposits a sediment commonly lateritious, and continues to do so for some time after the paroxysm is over. Stools seldom occur till towards the end of a paroxysm, except in certain uncommon cases which are attended throughout with a diarrhœa.

It frequently happens also that tumors, subsisting on the surface of the body, suffer, during the cold stage of fevers, a considerable diminution of their bulk; but which returns, though not always, during the sweating stage. In like manner, ulcers are sometimes dried up during the cold stage, and return again to discharge matter during the sweating stage, or after the paroxysm is over.

During the cold stage, the sensibility is often greatly impaired; but when the hot stage comes on, the sensibility is recovered, and often considerably increased. When the cold stage comes on, the attention and recollection become difficult, and continue so, more or less, during the whole paroxysm. Hence some confusion of thought takes place, and often arises to a delirium, which sometimes comes on at the beginning of the cold stage, but more frequently not till the hot stage is formed. With the cold stage also comes on a kind of drowsiness or stupor, which sometimes increases to such a degree that the patient becomes comatose and almost apoplectic. In this stage also a head-ach sometimes comes on; but more commonly this is not felt till the hot stage is formed, and then it is usually attended with a throbbing of the temples. The head-ach continues till the sweat breaks out; but as this flows more freely, that gradually wears off. At the same time there are commonly pains of the back, and some of the great joints; which are to be derived from the same causes with the head-ach.

These are the principal phenomena to be observed in the paroxysm of a fever; but it is very seldom that the disease is terminated by a single paroxysm such as hath been already described. It more generally happens, that after the series of phenomena above mentioned, and after the patient has been for a certain length of time free from them, the same series of pheno-

mena begin again to arise, and to observe the same course as before; and these states of fever and apyrexia often continue to alternate with each other for a great number of times. In these cases, the length of time from the end of one paroxysm to the beginning of another is called an *intermission*; and the length of time from the beginning of one paroxysm to the beginning of another is called an *interval*.

When the disease consists of a number of paroxysms, it is generally to be observed that the intervals between them are nearly equal; but these intervals are of different lengths in different cases. The most usual interval is that of forty-eight hours, which is named the *tertian* period. The next most common is that of seventy-two hours, and is named the *quartan* period. An interval of twenty-four hours is called the *quotidian* period. This last is not unfrequent: but all intervals longer than the quartan are extremely rare, and probably only irregularities of the tertian or quartan periods.

The paroxysms of pure intermittent fevers are always finished in less than twenty-four hours. But it frequently happens that there are fevers which consist of repeated paroxysms without any entire intermission between them: yet in such cases it is observed, that though the hot and sweating stages of the paroxysms do not entirely cease before the twenty-four hours from their beginning have expired, they suffer, however, before that time, a considerable abatement or *remission* of their violence; and at the return of the quotidian period, a paroxysm is in some shape renewed, and runs the same course as before. This constitutes what is called a *remittent fever*. In many cases, however, this remission is not considerable, and perhaps takes place without sweat; the returning paroxysm is not marked by the usual symptoms of a cold stage, but is chiefly known by the aggravation or *exacerbation* of a hot stage; in which cases the disease is called a *continued fever*. In some cases the remissions and exacerbations are so inconsiderable, that they are not easily observed or distinguished; and this has led physicians to imagine that there is a species of fever subsisting for several days together, and seemingly consisting of one paroxysm only. This they have called a *continent fever*; but Dr. Cullen assures us, that, in a long course of practice, he had no opportunity of observing such a fever.

With respect to the form or type of fevers, it may be observed, that the quartan, while it has the longest interval, has, at the same time, the longest and most violent cold stage, but, upon the whole, the shortest paroxysm; the tertian, having a shorter interval than the quartan, has, at the same time, a shorter and less violent cold stage, but a longer paroxysm; and lastly, that the quotidian, with the shortest interval, has the least of a cold stage, but the longest paroxysm. The type of fevers is sometimes changed in their

course. When this happens, it is generally in the following manner: both tertians and quartans change into quotidians; quotidians into remittents; and these last become often of the most continued kind; and in all these cases the fever has its paroxysms protracted longer than usual, before it changes into a type of more frequent repetition.

From all this the doctor concludes, that every fever consists of repeated paroxysms, and differs from others only in the circumstances and repetition of the paroxysms; and, therefore, that it was allowable to take the paroxysm of a pure intermittent as an example and model of the whole.*

The phenomena of fevers being thus enumerated, Dr. Cullen next proceeds to explain their causes. The proximate cause, he says, has hitherto eluded the researches of physicians; but as the hot stage is so constantly preceded by a cold one, he presumes that the cold stage is the *cause* of the hot one, and, consequently, that the cause of the cold stage is the cause of all that follows in the course of the paroxysm. The cold stage, he observes, is always preceded by evident marks of a general debility prevailing in the system. The smallness and weakness of the pulse, the paleness and coldness of the extreme parts, with the shrinking of the whole body, sufficiently shew that the action of the heart and larger arteries is, for the time, extremely weakened. At the same time the languor, inactivity, and debility of the animal motions, the imperfect sensations, the feeling of cold while the body is truly warm, and some other symptoms, all shew that the energy of the brain itself is, on this occasion, greatly weakened; and as this weakness of the action of the heart can hardly be attributed to any other cause, it is also a proof of the diminished energy of the brain. Another proof of the existence of debility is, that when the paroxysms of a fever have ceased to be repeated, they may be again renewed; and are most commonly renewed by the application of debilitating powers.

Hence, says our author, it is evident that there are three states which always take place in fever, viz. a state of debility, a state of cold, and a state of heat; and as these three states regularly succeed each other in the order above mentioned, it is to be presumed that they are in the series of cause and effect with regard to one another. The hot stage, he thinks, is an effect of the *vis medicatrix naturæ*, so famous in the schools of physic, and it is probable that many symptoms of diseases are owing to the same cause. To this cause he also inclines to attribute some of the symptoms of the cold stage, but is obliged to refer them to a law which he says exists in the animal economy, whereby those powers which have a tendency to hurt and destroy the system, often excite such motions as are suited to obviate the effects of the noxious power. That some part of the cold stage is owing to the *vis medicatrix*,

he thinks further probable, because the cold stage appears universally to be a means of producing the hot, because cold, externally applied, has very often similar effects; and especially because it seems to be in proportion to the degree of tremor in the cold stage that the hot one proceeds, more or less, quickly to a termination of the paroxysm, and to a more complete solution and longer intermission.

In the time of the cold stage, there seems to be a *spasm* induced every-where on the extremities of the arteries, particularly of those upon the surface of the body. This appears from the suppression of all the excretions, and from the shrinking of the external parts; and though this may in part be attributed to the weaker action of the heart in propelling the blood into the extreme vessels, yet as these symptoms often continue after the action of the heart is restored, there is reason to believe that a spasmodic constriction has taken place, and that it subsists for some time, and supports the hot stage; for this stage ceases with the flowing of the sweat, and the return of other excretions, which are marks of the relaxation of vessels formerly constricted.

The idea of fever then may be, that a spasm of the extreme vessels, however induced, may prove an irritation to the heart and arteries, and that this continues till the spasm is relaxed and overcome. Still, however, it will remain a question what is the cause of this spasm; whether it be directly produced by the remote causes of fever, or if it is only a part of the *vis medicatrix naturæ*. The doctor is inclined to the latter opinion, first, because it is certain that debility lays the foundation of fever; secondly, because, supposing this uncertain, we can more easily perceive how debility induces spasm, than how spasm produces debility, which always more or less appears; and thirdly, because we perceive that the degree of spasm formed, and the obstinacy of its continuance, depend, in many cases, upon the power of the causes inducing debility, and upon the debility induced; for the more powerful the debilitating causes, and the greater the debility produced, the paroxysms are the longer, and the more frequently repeated. From hence, says he, we are led to believe, that, together with the *spasm*, there is an *atony* subsisting in the extreme vessels, and that the relaxation of the spasm requires the restoring of the tone and action of these.

This may be illustrated from considering the symptoms which take place with respect to the functions of the stomach in fever, such as the anorexia, nausea, and vomiting. The connection, or consent, which we observe between the perspiration and the appetite in healthy persons, renders it probable, that the tone of the extreme vessels on the surface of the body, and that of the muscular fibres of the stomach, are connected or consenting with each other; and that therefore in fevers the want of appetite or of tone

in the muscular fibres of the stomach may depend upon the atony of the extreme vessels on the surface of the body. A further proof that in fevers the fibres of the stomach are affected with an atony, is the nausea and vomiting which so frequently occur, and which so commonly depend upon a debility of the stomach. That the debility of the stomach which produces vomiting depends upon an atony of the extreme vessels on the surface of the body appears particularly from an observation of Sydenham. In the attack of the plague, a vomiting happens, which prevents any medicine from remaining upon the stomach; and Dr. Sydenham tells us, that he could not overcome this vomiting but by external means, applied to produce a sweat or determination to the surface of the body.

The connection between the state of the stomach and that of the extreme vessels on the surface of the body appears from this also, that the vomiting, which so frequently happens in the cold stage of fevers, commonly ceases upon the coming on of the hot, and very certainly upon any sweat coming out. It is indeed probable, that the vomiting in the cold stage of fever is one of the means employed by nature for restoring the determination to the surface of the body; and it is a circumstance affording a proof, both of this and of the general connection between the stomach and surface of the body, that emetics thrown into the stomach and operating there in the time of the cold stage, commonly put an end to it and bring on the hot stage. It also affords a proof of the same connection, that cold water taken into the stomach produces an increase of heat on the surface of the body, and is very often a convenient and effectual means of producing sweat.

We draw a proof of the same connection from this also, that cold applied to the surface of the body, when it does not stop perspiration, is always a powerful means of exciting appetite. It may also be considered, whether the fever which so constantly accompanies the digestion of food in the stomach be not induced by filling the stomach, by relaxing its muscular fibres, and thereby inducing an atony of the extreme vessels.

The doctor acknowledges a difficulty in explaining how an atony and spasm can subsist at the same time in the same vessels, but considers it as a matter of fact which cannot be denied; and at the same time thinks it may be found analogous to what happens upon other occasions in the system, where we often observe atony producing spasm. This atony is supposed to depend upon a diminution of the energy of the brain; and that this diminution takes place in fevers, he concludes, not only from the debility prevailing in so many of the functions of the body as already mentioned, but from the symptoms peculiar to the brain itself.

Delirium is common in fever; and this symptom commonly

depends on some inequality in the excitement of the brain, or intellectual organ; and hence it may be concluded, that, in fever, it denotes some diminution in the energy of the brain. Delirium indeed seems often to depend on an increased impetus of the blood in the vessels of the brain, and, therefore, attends phrenitis. It frequently appears also in the hot stage of fevers, accompanied with a head-ach and throbbing of the temples. But, as the impetus of the blood in the vessels of the head is often considerably increased, by exercise, external heat, passions, and other causes, without occasioning any delirium; it must be supposed, that the same impetus, in the case of fever, produces delirium, for this reason only, that at the same time there is some cause which diminishes the energy of the brain, and prevents a free communication between the parts concerned in the intellectual functions. Upon the same principles also he supposes that there is another species of delirium which depends more entirely on the diminished energy of the brain, and may therefore arise when there is no unusual increase of the impetus of the blood in the vessels of the brain. Such seems to be the delirium occurring at the beginning of the cold stage of fevers, or in the hot stage of such fevers as shew strong marks of debility in the whole system.

“Upon the whole then (says he), our doctrine of fever is explicitly this:—The remote causes of fever are certain sedative powers applied to the nervous system, which, diminishing the energy of the brain, thereby produce a debility in the whole of the functions, and particularly in the action of the extreme vessels. Such, however, is at the same time the nature of the animal economy, that this debility proves an indirect stimulus to the sanguiferous system; whence, by the intervention of the cold stage and spasm connected with it, the action of the heart and larger arteries is increased, and continues so till it has had the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of restoring therefore their action, and thereby especially overcoming the spasm affecting them; upon the removing of which, the excretion of sweat, and other marks of the relaxation of excretories, take place.”

The doctor next proceeds to take notice of some mistakes concerning the nature of fever.—It has been supposed, that a toror or viscosity prevailing in the mass of blood, and stagnating in the extreme vessels, is the cause of the cold stage of fevers and its consequences. But there is no evidence of any such viscosity previously subsisting in the fluids; and as it is very improbable that such a state of them can be suddenly produced, the suddenness with which paroxysms come on renders it more likely that the phenomena depend upon some cause acting on the nervous system, or the primary moving powers of the animal economy.

Another opinion, which has been very universally received, is,

that a noxious matter introduced into, or generated in, the body, is the proximate cause of fever; and that the increased action of the heart and arteries, which makes so great a part of the disease, is an effect of the *vis medicatrix naturæ* to expel this morbid matter, and particularly to change and concoct it, so as to render it altogether innocent, or at least fit for being more easily thrown out of the body. This doctrine, however, though of as great antiquity as any in the records of physic, and received into every school of medicine, he nevertheless considers as exceedingly erroneous. Fevers are produced by cold, fear, and other causes, with all the essential circumstances belonging to the disease, and terminating by sweat, without any evidence or suspicion of morbid matter. There have been fevers suddenly cured by an hæmorrhagy so moderate as cannot carry out any considerable portion of a matter diffused over the whole mass of blood; nor can we conceive how the morbid matter could be collected or determined to pass off by such an outlet as in that case is opened. Even supposing a morbid matter were present, there is no explanation given in what manner the concoction of it is performed; nor is it shewn that any such change does in fact take place. In certain cases it is indeed evident, that a noxious matter is introduced into the body, and proves the cause of fever. But even in these cases it appears, that the noxious matter is thrown out again, without having suffered any change: that the fever often terminates before the matter is expelled: and that, upon many occasions, without waiting the supposed time of concoction, the fever can be cured; and by remedies that do not seem to operate upon the fluids, or to produce any evacuation.

But though he thus reasons against the notion of fevers being an effort of nature for concocting and expelling a morbid matter, the doctor by no means denies that the cause of fever frequently operates upon the fluids, and particularly produces a putrescent state of them. This he acknowledges is frequently the case: but at the same time he maintains, that such a change of the fluids is not commonly the cause of fever; that very often it is only an effect; and that there is no reason for believing the termination of the fever to depend upon the expulsion of the putrid matter.

Another opinion with regard to intermittent fevers remains still to be mentioned. In these fevers a great quantity of bile is commonly thrown out by vomiting; and this is so frequently the case, that many have supposed an unusual quantity of bile, and perhaps a peculiar quality of it, to be the cause of intermittent fevers. This, however, does not appear to be well founded. Vomiting, by whatever means excited, if often repeated with violent straining, seems to be powerful in emulging the biliary ducts, and commonly throws out a great deal of bile. This will happen especially in the case of intermittent fevers. For as, in the state of debility and cold stage of these fevers, the blood is not propelled in the usual quan-

tity into the extreme vessels, and particularly into those on the surface of the body, but is accumulated in the vessels of the internal parts, and particularly in the *vena portarum*; so this may occasion a more copious secretion of bile. The circumstance, however, which chiefly occasions the appearance of bile in these cases is, the influence of warm climates and seasons. These seldom fail to produce a state of the human body, in which the bile is disposed to pass off by its secretories in greater quantity than usual, and perhaps also changed in its quality; as appears from the disease of the cholera, which so frequently occurs in warm seasons. This disease, however, occurs often without fever: and there are very strong reasons for supposing that intermittent fevers for the most part arise from another cause, viz. marsh effluvia; while at the same time there is no evidence of their arising from the state of the bile alone. The marsh effluvia, however, commonly operate in the same season that produces the change of the bile; and therefore, considering the vomiting and other circumstances of the intermittent fevers which here concur, it is not surprising that autumnal intermittents are so often attended with effusions of bile.

The doctor now proceeds to consider the difference of fever, and its causes. With other physicians, he supposes, that in every fever there is a power applied to the body which has a tendency to hurt and destroy it, and produces certain motions in it which deviate from the natural state: and, at the same time, in every fever which has its full course, he supposes, that, in consequence of the constitution of the animal economy, there are certain motions excited which have a tendency to obviate the effects of the noxious power, or to correct or remove it. Both these kinds of motions he considers as constituting the disease. The latter, which are of a salutary tendency, and considered as the operations of the *vis medicatrix naturæ*, he calls the RE-ACTION of the system.

From the above doctrine it appears, that, in fever, the circumstances of debility, spasm, and re-action, are chiefly to be considered; and therefore, according as these are different in degree, and different in proportion to one another, they will exhibit the chief differences of fever.

Every fever of more than one day's duration, consists of repeated paroxysms; and in those in which the paroxysms are distinctly observed, it is constantly to be remarked, that every paroxysm is finished in less than 24 hours: but as we cannot perceive any thing in the cause of fevers determining to this, we must suppose it to depend on some general law of the animal economy. Such a law seems to be that which subjects the economy, in many respects, to a diurnal revolution. The cause of this is uncertain; but the returns of sleep and watching, of appetites and excretions, and the changes which regularly occur in the state of the pulse, shew sufficiently, that in the human body a diurnal revolution takes place.

That the paroxysms are connected with that revolution appears from this, that though the intervals of paroxysms are different in different cases, the times of the accession of the paroxysms are generally fixed to one time of the day; so that quotidians come on in the morning, tertians at noon, and quartans in the afternoon. It is still, however, to be remarked, that as quartans and tertians are apt to become quotidians, these to pass into the state of remittents, and these to become continued; and that, even in the continued form, daily exacerbations and remissions are generally to be observed; all this shews so much the power of diurnal revolution, that when in certain cases, the daily exacerbations and remissions are with difficulty distinguished, we may still presume that the general tendency of the economy prevails; that the disease still consists of repeated paroxysms; and, on the whole, that there is no such disease as hath been commonly called a *continent fever*.

The repetition of the paroxysms depends on the circumstances belonging to them when already formed. The longer these paroxysms are protracted, the sooner they are repeated; and therefore we are to conclude, that the cause of the frequent repetition is to be sought for in the cause of the protraction of the paroxysms. The duration of the whole paroxysm chiefly depends upon that of the hot stage, in which the reaction is operating to take off the spasm formed in the cold stage. We may therefore suspect, that the longer duration of the hot stage, is owing either to the obstinacy of the spasm, or to the weakness of the reaction; and it is probable, that sometimes the one and sometimes the other of these circumstances takes place.

The degree of spasm which takes place in fever may be supposed different, according to the degree of irritability in each particular person; and therefore the reaction in fever being given, the paroxysm, or continuance of the hot stage, may be longer or shorter, according to the degree of spasm that has been formed. One of the causes of the obstinacy of spasm is, that in inflammatory diseases there is a *diathesis phlogistica* prevailing in the body, and this diathesis is supposed by the doctor to consist in an increased tone of the whole arterial system. When therefore this diathesis accompanies fever, as it sometimes does, it may be supposed to give occasion to the febrile spasms being formed more strongly, and thereby to produce more protracted paroxysms. Accordingly we find, that all inflammatory fevers are of the continued kind, and that all the causes of the diathesis phlogistica have a tendency to change intermittent into continued fevers. As continued fevers, therefore, are in many cases attended with the diathesis phlogistica, our author thence concludes, that this is the cause of their continued form. In many fevers, however, there is no evidence of any diathesis phlogistica being present, or any evidence of more considerable spasm; and in such fevers we must impute the protraction of the

paroxysms, and the continued form of the fever, to the weakness of reaction. That this cause takes place, may be concluded from hence, that in many cases of fever wherein the separate paroxysms are the most protracted, and the most difficultly observed, we find the most considerable symptoms of a general debility; and therefore it may be concluded, that in such cases the protracted paroxysms and continued form depend upon a weaker reaction, owing either to the causes of debility applied having been of a more powerful kind, or to circumstances of the patient's constitution favouring their operation.

From the view just now given of the causes of the protraction of paroxysms, and therefore of the form of continued fevers strictly so called, it seems probable, that the remote causes of these operate by occasioning either a phlogistic diathesis, or a weaker reaction; or we can observe, that the most obvious difference of continued fevers depends upon the prevailing of one or other of these states.

With regard to the *remote causes of fever*, as this has been considered as consisting chiefly in an increased action of the heart and arteries, physicians have supposed, that certain direct stimulants, fitted to produce this increased action, are the remote causes of fever. In many cases, however, there is no evidence of such stimulants being applied: and in the cases in which they are applied, they either produce only a temporary frequency of pulse, which cannot be considered as a disease; or if they do produce a permanent hectic state, it is by the intervention of a topical inflammation, which produces a disease different from what is strictly called a fever.

That direct stimulants are the remote causes of fever seems farther improbable, because the supposition does not account for the phenomena attending the accession of fevers, and because other remote causes can with greater certainty be assigned. As fevers are so generally epidemic, it is probable, that some matter floating in the atmosphere, and applied to the bodies of men, ought to be considered as the remote cause of fevers. These matters being present in the atmosphere, and acting upon men, may be considered either as *Miasmata*, or as *Contagions*.

Miasmata may arise from various sources, and be of different kinds: but we know little of their variety or of their several effects. We know with certainty only one species of miasma which can be considered as the cause of fever; and from the universality of this it may be doubted whether there be any other. The miasma so universally the cause of fever, is that which arises from marshes or moist ground acted upon by heat. So many observations have now been made with respect to this, in so many different regions of the earth, that there is neither any doubt of its being in general a cause of fever, nor of its being very universally the cause of intermittent fevers in all their different forms. The similarity of the climate,

season, and soil, in which intermittents arise, and the similarity of the diseases arising in different regions, concur in proving that there is one common cause of these diseases, and that this is the marsh miasma. What is the particular nature of this miasma we know not; nor do we certainly know whether it differs in kind or not; but it is probable that it does not; and that it differs only in the degree of its power, or perhaps in its quantity, in a given space.

Of *contagions*, a great variety have been supposed to exist; but this seems to be asserted without sufficient evidence. The number of genera and species of contagious diseases, of the class of pyrexia, at present known, is not very great. Whether there are any belonging to the order of phlegmasia, is doubtful; and though it should be supposed, it will not much increase the number of contagious pyrexia: and as each of the contagious diseases hath been found always to retain the same character, and to differ only in circumstances, which may be imputed to season, climate, and other external causes, or to the peculiar constitution of the persons affected, it may thence be concluded, that in each of these species the contagion is of one specific nature; and that there is one principal, perhaps one common, source of such contagions.

It is now well known, that the effluvia arising from the living human body, if long confined in the same place, without being diffused in the atmosphere, acquire a singular virulence; and, in that state, applied to the bodies of men, become the cause of a fever which is very contagious. The late observations on jail and hospital fevers have fully proved the existence of such a cause; and it is sufficiently obvious, that the same virulent matter may be produced in many other places. At the same time the nature of the fevers arising renders it probable, that the virulent state of human effluvia is the common cause of such fevers, as they differ only in a state of their symptoms; which may be imputed to the circumstances of season, climate, &c. concurring with the contagion, and modifying its force.

With respect to these contagions, though they are spoken of above as a matter floating in the atmosphere, it is proper to observe, that they are never found to act but when they are near to the sources from whence they arise; that is, either near to the bodies of men from which they immediately issue, or near to some substances which, as having been near to the bodies of men, are imbued with their effluvia, and in which substances these effluvia are sometimes retained in an active state for a very long time. The substances thus imbued with an active matter may be called *fomites*; and the doctor thinks it probable, that contagions, as they arise from fomites, are more powerful than as they arise immediately from the human body. But though it is probable that fevers generally arise from marsh or human effluvia, we cannot with any certainty exclude some other remote causes which are commonly supposed to have a

share in producing them. The first of these causes to be taken notice of is, the operation of cold on the human body.

This acts so differently in different circumstances, that it is difficult to give a satisfactory explanation of it. In certain circumstances cold has manifestly a sedative power. It can extinguish the vital principle entirely, either in particular parts, or through the whole body; and, considering how much the vital principle of animals depends upon heat, it cannot be doubted that the power of cold is always more or less directly sedative.—But it is equally manifest, that, in certain circumstances, cold proves a stimulus to the living body, and particularly to the sanguiferous system. Besides the sedative and stimulant powers of cold, it is also manifestly a powerful astringent; causing a contraction of the vessels on the surface of the body, and thereby producing paleness and a suppression of perspiration. It is likewise probable, that this constriction is in some measure communicated to the whole body, and that thereby the application of cold proves a tonic with respect to the whole system.

These several effects of cold do not all take place at the same time, but may be variously combined. The stimulant power taking place, obviates the effects that might otherwise have arisen from the sedative, and in some measure from those of the astringent power. But the stimulant and tonic powers of cold are commonly conjoined, and the former perhaps depend in part upon the latter.

In what circumstances these different effects of cold take place, is difficult to determine; but the morbid effects may be observed to be chiefly of four kinds. One is a general inflammatory diathesis of the system; which is commonly accompanied with rheumatism, or other phlegmasia. A second is a catarrhal affection; a third is a gangrene; and a fourth is a proper fever. In producing this last, the operation of cold generally concurs with that of marsh or human effluvia. In all its operations, cold seems to act more powerfully, in proportion as the body, and particularly the vigour of the circulation, is previously more weakened.

Besides cold, there are other powers which seem to be the remote causes of fever; as fear, intemperance in drinking, excess in venery, and other causes, which evidently weaken the system. But, whether any of these sedative powers be alone the remote cause of fever, or if they only concur with the operation of marsh or human effluvia, or if they give an opportunity to the positive operations of cold, are questions not to be answered with certainty.

The *causes of death in fevers* are either direct or indirect. The first are those which directly attack and destroy the vital principle as lodged in the nervous system, or destroy the organs immediately connected with it. The second, or the indirect causes of death, are those which interrupt such functions as are necessary to the due continuance and support of the vital principle.

Of these general causes, those which operate more particularly in fevers seem to be, First the violence of reaction, which, either by repeated violent excitements destroys the vital power itself, or by violence destroys the organization of the brain necessary to the action of the vital principle, or by the same violence destroys the organization of the parts more immediately necessary to the circulation of the blood. Secondly, the cause of death in fevers may be a poison; that is, a power capable of destroying the vital principle; and this poison may be either the miasma or contagion which was the remote cause of the fever, or it may be a putrid matter generated in the course of the fever. In both cases, the operation of such a power appears either as acting chiefly on the nervous system, inducing the symptoms of debility; or, as acting upon the mass of blood, inducing a putrescent state in it, and in the fluids derived from it.

From all this the symptoms shewing the tendency to death in fevers may be discovered, by their being either the symptoms of violent reaction, of great debility, or of a strong tendency to putrefaction in the fluids.

The symptoms which denote the *violence of reaction*, are, 1. The increased force, frequency, and hardness of the pulse. 2. The increased heat of the body. 3. Those symptoms which are the general marks of an inflammatory diathesis; and more especially those of a particular determination to the brain, lungs, or other important viscera. 4. Those which are the marks of the cause of violent reaction; that is, of a strong spasm, appearing in the suppression of the excretions.

The symptoms which denote *a great deal of debility* are—In the animal functions, 1. The weakness of the voluntary motions. 2. The irregularity of the voluntary motions depending on their debility. 3. The weakness of sensation. 4. The weakness and irregularity of the intellectual operations. In the vital functions, 1. The weakness of the pulse. 2. The coldness or shrinking of the extremities. 3. The tendency to a deliquium animi in an erect posture. 4. The weakness of respiration.—In the natural functions, 1. The weakness of the stomach, as appearing in anorexia, nausea, and vomiting. 2. Involuntary excretions, depending upon a palsy of the sphincters. 3. Difficult deglutition, depending upon a palsy of the muscles of the fauces.—The symptoms denoting a putrescent state of the fluids, are, 1. In the stomach, the loathing of animal food, nausea, and vomiting, great thirst, and a desire of acids. 2. In the mass of blood an unusual fluidity, so that when drawn out of the veins it does not coagulate as usual; hæmorrhagy from different parts, without marks of increased impetus; effusions under the skin or cuticle, forming petechiæ, maculæ, and vibices, and effusions of a yellow serum under the cuticle. 3. In the state of excretions, frequent, loose, and fetid stools; high-coloured turbid

rine; fetid sweats; and the fœtor of blisters. 4. The cadaverous smell of the whole body.

Many physicians have been of opinion that there is something in the nature of fevers which generally determines them to be of a certain duration; and therefore, that their terminations, whether in health or in death, happen at certain periods of the disease rather than at others. These periods are called the *Critical Days*. These were carefully observed by Hippocrates and the ancients, but have been denied by many to take place in the fevers of these northern regions. Dr. Cullen, however, is of opinion, that the doctrine of the ancients, and particularly that of Hippocrates, on this subject, was well founded; and that it is just and true even with respect to the fevers of our climate. For this opinion he gives the following reasons: 1. Because the animal economy is readily subjected to periodical movements, both from its own constitution, and from habits which are readily produced in it. 2. Because periodical movements take place in the diseases of the human body with great constancy and exactness, as in the case of intermittent fevers, and many other diseases.

The *critical days*, or those on which the termination of continued fevers is supposed to happen, are, the *third, fifth, seventh, ninth, eleventh, fourteenth, seventeenth, and twentieth*. We mark one beyond this last; because though fevers are sometimes protracted beyond this period, the instances are but rare, and we have not a sufficient number of observations to ascertain the course of them; and likewise because it is probable, that in fevers long protracted the movements become less exact and regular, and are therefore less easily observed. This appears from the facts laid down by Hippocrates: as, in 163 cases of fever, no fewer than 57, or more than two thirds of the whole number, terminated on one or other of the eight days above mentioned; none terminated on the second or thirteenth; and upon the eighth, tenth, twelfth, fifteenth, sixteenth, eighteenth, and nineteenth, there are but 18 terminations, or one-ninth of the whole. But though it must be acknowledged that it is the general tendency of the animal-economy to determine the periodical movements in fevers to be chiefly on critical days, it must also be acknowledged, that in many cases the regular course of it may be disturbed by particular circumstances. Thus, though the chief and more remarkable exacerbations in continued fevers happen on the critical days, there are truly exacerbations happening every day; and these, from certain causes, may become considerable and critical.

What determines the periods to be changed about the 11th day, hath not been well understood. But the fact is certain: for there is no instance of any termination on the 13th; but on the 14th, 17th, and 20th, there are 43 instances of termination, and only 5 on all the intermediate days between these. Hippocrates in-

deed makes mention of many terminations happening on the 4th day; but, from its inconsistency with the general tendency, and some other considerations, Dr. Cullen is led to think that the terminations on this day are to be looked upon only as irregularities. The opinions of those modern physicians who refuse the prevalence of critical days, he thinks, are to be little regarded. The observation of the course of continued fevers is difficult and fallacious; and therefore the regulating of that course may have escaped inattentive and prejudiced observers. His own observations amount to this: That fevers with moderate symptoms, generally cases of the synocha, frequently terminate in nine days or sooner, and very constantly on one or other of the critical days which fall within that period: but it is very rare in this climate, that cases of either the typhus or synochus terminate before the 11th day; and when they do terminate on this day, it is most commonly fatal. When protracted beyond this period, their termination hath been very constantly observed on the 14th, 17th, or 20th day.

In such cases, the salutary terminations are seldom attended with any considerable evacuation. A sweating frequently appears, but is seldom considerable; and critical and decisive terminations have been hardly ever observed attended with vomiting, evacuations by stool, or remarkable changes in the urine. The solution of the disease is chiefly to be discerned from some return of sleep and appetite, the ceasing of the delirium, and an abatement of the frequency of the pulse. By these symptoms we can often mark a crisis of the disease; but it seldom happens suddenly and entirely, and it is most commonly from some favourable symptoms on one critical day that we can announce a more entire solution on the next following.

Having thus given a pretty full account of the doctor's general theory of fevers, we now proceed to take notice of his *doctrine of inflammation*.

When any part of the surface of the body is affected with unusual redness, heat, pain, and tumor, we name the disease an *inflammation* or *phlegmasia*. These symptoms of inflammation are never very considerable, without the whole system being at the same time affected with *pyrexia*. The internal parts are subject to inflammation as well as the external; and we judge them to be inflamed, when, together with pyrexia, there is a fixed pain in any internal part, attended with some interruption in the exercise of its functions. We judge of the presence of inflammation also from the state of the blood drawn from the veins. When the blood, after cooling and concreting, shews a portion of the gluten separated from the rest of the mass, and lying on the surface of the crassamentum; as such separation happens in all cases of more evident phlegmasia, so in ambiguous cases, we from this appearance,

joined with other symptoms, conclude the presence of inflammation. At the same time it must be observed, that as several circumstances in blood-letting may prevent this separation of gluten from taking place in blood otherwise disposed to it, so we cannot always conclude, from the want of such appearance, against the presence of inflammation.

The *phenomena of inflammation* all concur in shewing, that there is an increased impetus of the blood in the vessels of the part affected; and as at the same time the action of the heart is not always considerably increased, Dr. Cullen supposes that the increased impetus of the blood in the particular part is owing especially to the increased action of the vessels of the part itself. The cause of this increased action is therefore to be enquired after, and is the proximate cause of inflammation. In many cases we can manifestly perceive, that inflammation arises from the application of stimulant substances to the part. When the application of stimulants therefore is evident, we seek for no other cause of inflammation; but as, in many cases, such application is neither evident, nor (with any probability) to be supposed, we must in such cases seek for some other cause of the increased impetus of the blood in the vessels of the part.

Many physicians have supposed, that an obstruction of the extreme vessels, any-how produced, may prove a cause of inflammation: but many difficulties attend this doctrine.

1. The supposition of an *error loci* is not at all probable. For the motion of the blood in the extreme vessels is so weak and slow, as readily to admit a retrograde course of it: and therefore, if a particle of blood should happen to enter a vessel whose branches will not allow its passage, it will be moved backwards till it meet with a vessel fit for transmitting it; and the frequent ramifications and anastomoses of the extreme arteries are very favourable to this.

2. The supposition of a preternatural lentor or viscosity of the blood, is not well founded; for it is probable, that nature has specially provided against a state of the fluids so incompatible with the exercise of the most important functions of the animal economy. While motion continues to prevent any separation of parts, and heat continues to preserve the fluidity of the more viscid, there seems to be always so large a quantity of water present, as to give a sufficient fluidity to the whole.

3. The doctor supposes that no general lentor ever does take place; because, if it did, it must shew more considerable effects than commonly appear.

4. There are no experiments directly in proof of a preternatural lentor prevailing in the mass of blood; nor is there any evidence of certain parts of the blood occasionally acquiring a greater density and force of cohesion than ordinary; neither is there any proof.

of the denser or more coherent parts being present in the mass of blood in such greater proportion than usual, as to occasion a dangerous spissitude. The experiments of Dr. Browne Langrish on this subject afford no conclusion, having been made on certain parts of the blood separated from the rest, without attending to the circumstances of blood-letting, which very much alter the state of the separation and concretion of the blood drawn out of the veins.

5. In the particular case of inflammation, there are several circumstances which render it probable that the blood is then more fluid than usual.

6. Though an obstruction should be supposed to take place, it will not be sufficient for producing the effects appearing in inflammation. An obstruction of one vessel does not, as has been imagined, increase the velocity of the blood in the neighbouring vessels which are free; and in fact it appears, from many observations and experiments, that considerable obstructions may be formed, and may subsist, without producing the symptoms of inflammation.

Obstruction, therefore, is not to be considered as the cause of inflammation; but, at the same time, it is probable, that some degree of obstruction does take place in every inflammation. The distension, pain, redness, and tumor, attending inflammation, are only to be explained by supposing, that the extremities of the arteries do not readily transmit the unusual quantity of blood impelled into them by the increased action in the course of those vessels. Such an obstruction may be supposed to happen in every case of an increased impetus of the blood; but it is probable, that, in the case of inflammation, there is also a preternatural resistance to the free passage of the fluids.

From the doctrine of fever we are led to believe, that an increased action of the heart and arteries is not supported for any length of time by any other means than a spasm affecting the extreme vessels: and that the same spasm takes place in inflammation, seems probable from hence, that every considerable inflammation is introduced by a cold stage, and is accompanied with that and the other circumstances of pyrexia; and it seems also probable, that something analogous to this occurs even in the case of those inflammations which seem less considerable, and to be purely topical.

From all this, the *nature of inflammation* may be explained in the following manner. Some causes of inequality in the distribution of the blood may throw an unusual quantity of it upon particular vessels, to which it must necessarily prove a stimulus. But, further, it is probable, that, to relieve the congestion, the *vis medicatrix naturæ* increases still more the action of these vessels, which it effects by the formation of a spasm on their extremities, as in all other febrile diseases. A spasm, therefore, of the extreme

arteries, supporting an increased action in the course of them, may be considered as the proximate cause of inflammation, at least in all cases not arising from direct stimuli applied. That this is the case, seems probable from the consideration of rheumatism. This is a species of inflammation which is often manifestly produced, either by cold applied to over-distended vessels, or by causes of an increased impetus and over-distension in vessels previously constricted. Hence the disease especially appears at seasons liable to frequent and considerable vicissitudes of heat and cold. To this we may add, that the parts of the body most frequently affected with inflammation, are those exposed both to over-distension from a change in the distribution of the fluids, and at the same time to the immediate action of cold. Hence quinsys and pneumonic inflammations are more frequent than any others.

That a spasm of the extreme vessels takes place in inflammation is further to be presumed from what is at the same time the state of the whole arterial system. In every considerable inflammation, though arising in one part only, an affection is communicated to the whole system; in consequence of which, an inflammation is readily produced in other parts besides that first affected. This general affection is well known to physicians under the name of the *diathesis phlogistica*. It appears most commonly in persons of the most rigid fibres; is often manifestly induced by the tonic or astringent powers of cold; is increased by all tonic and stimulant powers applied to the body; is always attended with a hardness of the pulse; and is most effectually taken off by the relaxing powers of blood-letting. From these circumstances it seems probable, that the *diathesis phlogistica* consists in an increased tone, or contractility, and perhaps *contraction*, of the muscular fibres of the whole arterial system. Such a state of the system presumes a spasm of the extreme vessels, and the general state commonly arises from that begun in a particular part; though it be also probable, that the general state may arise and subsist for some time without the obvious inflammation of any particular parts.

If an inflammation is cured while the state and texture of the part remain entire, the disease is said to terminate by *resolution*. This happens when the previous congestion and spasm have been in a moderate degree, and the increased impetus of the blood has been sufficient to overcome the spasm, to dilate the vessels, and to remove the congestion, so that the part is restored to its ordinary and healthy state. A resolution takes place also when the increased impetus of the fluids has produced an increased exhalation into the adjoining cellular texture, or an increased excretion in some neighbouring part, and has thereby relieved the congestion in the vessels, and relaxed the spasm of the inflamed part. Lastly, a resolution may take place when the increased impetus of the blood in the whole system occasions such an evacuation as, though

in a distant part, may prove sufficient to take off the phlogistic diathesis of the whole system, and thereby relieve the congestion and spasm of the particular part affected by inflammation.

The tumor which appears in inflammation may be imputed in part to the congestion of fluids in the vessels; but is owing chiefly to an effusion of matter into the adjoining cellular texture; and accordingly tumors seldom appear but in parts adjoining to a lax cellular texture. If, in this case, the matter effused be only a larger quantity of the ordinary exhalent fluid, this, when the free circulation in the vessels is restored, will be readily absorbed, and the state of the part will become the same as before: but if the increased impetus of the blood in an inflamed part dilate the exhalent vessels to such a degree that they pour out an entire serum, this will not so readily be re-absorbed; and, from the experiments of Sir John Pringle and Mr. Gaber we learn, that under stagnation the serum may undergo a particular change, by having the gluten present in it changed into a white, opaque, moderately viscid, mild liquor, which we name *pus*. When this change happens in the inflamed part, as it is at the same time attended with an abatement of the redness, heat, and pain, which formerly distinguished the disease, it is said to be terminated by *suppuration*; and an inflamed part containing a collection of pus, is called an *Abscess*. In inflammation, the tendency of it to suppuration may be discovered by the continuance of the inflammation, without the symptoms of resolution; by some remission of the pain of distension; and by the pain being of a throbbing kind, more distinctly connected with the pulsation of the arteries; by the pulse of the arteries being fuller and softer; and often by the patient's being afflicted frequently with cold shiverings. This happens at no determinate period; and when the tendency is determined, the time necessary to a complete suppuration is different in different cases. When pus is completely formed, the pain formerly in the part entirely ceases, and a weight is felt in it. If the collection is formed immediately under the skin, the tumor becomes pointed, the part becomes soft, and the fluctuation of the fluid within can be commonly perceived; and, at the same time, the redness of the skin, which formerly prevailed, is entirely gone.

In abscesses, while the pus is formed of one part of the matter which had been effused, the other and thinner parts are re-absorbed; so that in the abscess, when opened, pus alone appears. This pus, however, is not the converted gluten alone: for the conversion of this being the effect of a particular fermentation, which may affect the solid substance of the part, and perhaps every solid of animal bodies; so it most readily and particularly affects the cellular texture, and thereby a great deal of this is eroded, and forms a part of the pus; and it generally happens also, that some of the smaller red vessels are eroded, and some red blood appears

mixed with the pus in abscesses. Hence we may see how an abscess, when formed, may either spread into the cellular texture of the neighbouring parts, or, by eroding the incumbent teguments, be poured out upon the surface of the body, and produce an open ulcer.

The *matter of abscesses*, and of the ulcers following them, is various, according to the nature of what is effused; and which may be, 1. a matter thinner than serum; 2. an entire and pure serum; 3. a quantity of red globules; 4. a matter furnished by particular glands seated in the part. Of these, the second only affords a proper pus, the effusion of which, whether in abscesses or ulcers, seems to be the peculiar effect of an inflammatory state of the vessels; and from this cause it is, that, when ulcers do not produce a proper pus, we in many instances bring them to a state of suppuration, by the application of stimulants exciting inflammation, such as balsams, mercury, copper, &c.

When the matter effused into the cellular texture of an inflamed part is tainted with a putrid ferment, this produces, in the effused matter, a change approaching more or less to a complete putrefaction. When this is in a moderate degree, and affects only the fluids effused, with the substance of the cellular texture, the part is said to be affected with a *Gangrene*; but if the putrefaction affect also the vessels and muscles of the part, the disease is said to be a *Sphacelus*.

A gangrene may arise from a putrid ferment acting on the matter which is most commonly effused, and likewise from that matter being peculiarly disposed to putrefaction; as particularly seems to be the case of the red globules of blood effused in a large quantity. In a third manner also, a gangrene seems frequently to arise from the violent excitement of the inflammation destroying the tone of the vessels; whereby the whole fluids stagnate and run into putrefaction, which taking place in any degree destroys further the tone of the vessels, and spreads the gangrene.

A tendency to gangrene may be apprehended from an extreme violence of pain and heat in the inflamed part, and from a great degree of pyrexia attending the inflammation. The actual coming on of it is perceived by a change of colour in the part from a clear to a dark red; by blisters arising upon it; by its becoming soft, flaccid, and insensible; and by the ceasing of all pain while these appearances take place. As the gangrene proceeds, the colour of the part becomes livid, and, by degrees, quite black; the heat entirely ceases, the softness and flaccidity of the part increases; it loses its consistence, acquires a cadaverous smell, and may then be considered as affected with a *sphacelus*.

The schools of physic have commonly reckoned a fourth way in which inflammation may terminate, viz. by a *schirrus*, or an indolent hardness of the part. This, however, according to Dr.

Cullen, is a rare occurrence; and seems not to depend so much upon the nature of inflammation as upon the circumstances of the part affected. Scirrhus is chiefly observed in glandular parts, and is owing to the parts readily admitting a stagnation of the fluids.

Besides these there are the following ways, not commonly taken notice of, in which inflammations terminate. One is, by the effusion of a portion of the entire mass of blood, either by means of rupture or anastomosis, into the adjoining cellular texture. This happens especially in inflammations of the lungs, where the effused matter, by compressing the vessels, and stopping the circulation, occasions a fatal suffocation; and this is perhaps the manner in which the peripneumony most commonly proves fatal.—Another kind of termination is that of certain inflammations on the surface of the skin, when there is poured out under the cuticle a fluid too gross to pass through its pores; and which therefore separates it from the skin, and raises it up in the form of a vesicle containing the effused fluid.—A third way is, when the internal viscera are inflamed, there appears almost always upon their surface an exudation, which appears partly in a viscid concretion upon their surface, and partly in a thin serous fluid effused into the cavities in which the inflamed viscera are placed. Though these appearances very constantly accompany those inflammations which have proved fatal, it is however probable, that like circumstances may attend those inflammations terminated by resolution, and may contribute to the event, as there are instances of a pneumonic inflammation terminating in an hydrothorax.

The remote causes of inflammation may be reduced to four heads. 1. The application of stimulant substances, among which are to be reckoned the action of fire, or burning. 2. External violence operating mechanically in wounding, bruising, or overstretching the parts. 3. Extraneous substances lodged in any part of the body, though they be neither of an acrid quality, nor of a pointed form. 4. Cold, in a certain degree, not sufficient immediately to produce gangrene.

We cannot perceive that in different cases of inflammation there is any difference in the state of the proximate cause, except in the degree; and though some difference of inflammation may arise from the difference of its remote causes, this is not necessary to be taken notice of here; because the different appearances which attend different inflammations may be referred for the most part to the difference of the part affected, as will appear when we consider the several genera and species of diseases in the Nosology.

After having availed ourselves of the celebrated names already announced in the foregoing sketches of the Theory of Medicine, we might very well have brought the subject to a close here; and many of our readers, after the opinion we have openly

avowed, that, "medicine does not admit of so much simplicity" as distinguishes the system of Dr. BROWN, will little expect to see his opinions seriously noticed.

We are persuaded however, that it will be highly acceptable to medical men in general; if we terminate this portion of our work with *an account of the chief peculiarities of the Brunonian System*. At a time when every university in Europe and America, and practitioners in both Indies, are directing their attention, by encomiums or criticisms, to this ingenious theory; when it has begun to be adopted, and openly avowed by many popular writers in the kingdom; it may not be amiss to give a concise view of its principles and peculiarities. Though dignified by its admirers with the title of a system, it will be obvious to the discerning reader, that there are many chasms in it, in common with all other medical systems; and many errors, the correction of which will require much time and observation, if even the fundamental principles of it should be admitted.

The circumstances attending the promulgation of Dr. BROWN's doctrines, at first in Edinburgh, made the professors and established practitioners unite very generally in opposing them. They might have perceived, that the application of his system to practice was by no means so simple and obvious as the young students who first embraced it imagined; and therefore they might have opposed it from an opinion of its dangerous tendency, as well as a disapprobation of the conduct of its author. This opposition, however, in an University, which, since the death of Boerhaave, has dictated the medical opinions of Europe and America, contributed most effectually to disseminate and establish the new doctrines in question. The medical societies of Edinburgh, instituted for the discussion of theoretical and practical subjects connected with medicine, have an almost irresistible influence over the opinions of its students. In order to defend his own dissertations in these societies, or attack those of his contemporaries, every member must acquire the ideas and phraseology which prevail at the time; and that too at a period of life when all forcible impressions remain indelible. It must be observed, that the members who attend these societies consist almost entirely of young students, and the presidents are always elected from among them; so that their debates are never over-awed by the presence of professors or established practitioners. It is well known that the society called the Royal Medical Society of Edinburgh were in the habit of discussing medical subjects, on the principles of the spasmodic, or that since called the Cullenian theory, which they had acquired from the works of Hoffman, long before the professors themselves had relinquished the opinions of the Boerhaavian school. It is also true, that, during the latter part of the life of Dr. CULLEN, the Brunonian system was adopted in all these so-

cieties, though the graduates of that university were not allowed to publish their theses upon any other principles than those taught by the professors. The system of Brown, adopted and disseminated by at least 200 young men annually, from which number the surgeons and physicians of the navy and army are generally supplied, as well as the practitioners of the East and West Indies, must necessarily in eight or ten years affect the opinions of the whole medical world. This was really the case; but persons established in the profession were somewhat shy and backward in declaring their opinions, till Dr. DARWIN professed himself to have been a Brunonian, even before he had heard of Brown's system.

The learned were ashamed to avow the opinions of PARACELSUS, before VAN HELMONT openly adopted them. This reluctance in the human mind, against being led by an individual, or being the first to join an innovator, appears to arise from the unwillingness of admitting a dictator, or from the ridicule commonly thrown upon an early apostate from established opinions.

Since the publication of *Zoonomia*, the language and sentiments of Brunonianism are become common; but what is remarkable, though by no means singular, on the occasion, is, that a majority of the persons who are become converts to the doctrine are totally unable to recollect when or how they were converted.

But it is our business to give an account of the system, rather than of the means which retarded or promoted its promulgation.

The common opinion respecting life, or the vital principle in animals and vegetables, is, that it is entirely distinct from the organization of the body in which it resides; that it is a separate, independent principle, added to the body in some early period of its existence, and which there continues unchangeable, and then leaves it at a late period, when it finds the habitation no longer tenable. Dr. Brown, on the contrary, considers life as an assemblage of actions or effects, which take place in the body in consequence of a certain predisposition and exciting causes; and that the state or quantum of the vital principle, or energy of the system, is *perpetually varying*. Thus the abstraction of heat and food may reduce the powers of life so low, that the hot bath, or a glass of wine, would be sufficient to destroy the patient. On the other hand, a jail fever, in a few days, may so far diminish the vital energy, that a warm room, and a bottle of wine a-day, may become necessary to preserve life. In the former case, predisposition is said to be morbidly accumulated; in the latter, exhausted. This short statement includes the basis of the system; but, before we proceed to develop it further, it is necessary to explain a few terms which are peculiar to the doctrine, or employed in a peculiar sense.

The degree or state of action, or vigour of the system, or energy of the vital principle, which is present at any time, is here called

excitement.—It has been suggested, that Dr. Brown adopted this term, because Dr. Cullen had rendered it fashionable and familiar to the profession, though he used it in a more limited acceptation. We rather suppose it was preferred on account of its implying here no particular hypothesis.

That state of the organization of the solids and fluids which constitutes the predisposition to *excitement*, is denoted by the term *excitability*.—Some of Dr. Brown's followers, who were of opinion that the *excitability* of the system depended upon the state of the muscular fibre alone, employed the word *irritability*, as synonymous with *excitability*. But this is objectionable, as being founded on an opinion not generally received.

All those powers, both internal and external, such as the passions, heat, food, medicines, contagion, pain, &c. which, by acting upon the excitability, produce *excitement*, are included under the general name of *stimuli*.—This term is perhaps more objectionable than either of the preceding, on account of the enormous extension of its application. Stimulants and sedatives were terms that had long been received as antagonists in a medical sense. The annihilating one, and making it only a degree of the other, was a shock to medical language too great to be acquiesced in on a sudden. Yet we know, that, in the language of the profession, heat and cold were formerly considered as antagonists, but now nobody doubts that they are only different degrees of heat.

The same error pervades medical language, when speaking of the exciting passions; the effects of hope are often imputed to fear, which is only a different degree of hope.

If, for the sake of avoiding the term *stimuli*, Dr. Brown had used *exciting powers*, the absurdity of exciting powers producing depression, in however low a degree applied, would have appeared more objectionable than the generalization of the term. We shall soon see, that the different *degrees* or *intensities* of stimuli may often be substituted for most of the different genera and species of them, as well as those supposed *antagonists*.

Having explained the chief radical terms peculiar to this system, we shall next proceed to its developement with respect to the operation of stimuli upon the excitability, in producing the various degrees of excitement, upon which all health and disease are made to depend.

1. The *excitability* of the whole body, as well as of particular parts, is by Dr. Brown supposed to be in a state of *perpetual variation*.

This variation depends upon the time and manner of application, of the internal and external stimuli employed.

To illustrate this fundamental position, we may instance the change which takes place in the progress of life, independent of accidental circumstances. In the first days after birth, the excitability

of the *primæ viæ* is such, that a few grains of manna will act as an operative dose. During the first year, the healthy excitement of the system may be supported by a milk diet; and it argues an abuse of stimuli, if a glass of wine does not prove an excessive stimulus before the age of puberty. In advanced life it is well known, that the stimuli just mentioned are far too feeble to produce any obvious effect or excitement. If these ideas were not founded in truth, there is no obvious reason why animals and vegetables might not be immortal.

The accidental circumstances, which we have just alluded to, as most commonly producing variations in the excitability, are, the internal and external stimuli above mentioned. The changes, however, depend almost entirely upon the manner of applying them. It is not the rare or casual operation of stimuli, which produces any permanently important variation in the excitability, but that which, frequently and regularly repeated, changes custom into habit. This may be illustrated by referring to the effects of opium, tobacco, spirits, &c. upon persons accustomed to the use of them. We may also advert to the various states of the excitability at the commencement and during the progress of fevers; in persons properly fed and clothed; and in the same persons, when accidentally deprived of these comforts, &c. &c.

2. The degrees, intensity, or sum of stimuli, which act upon the excitability, and regulate the excitement or energy of the system, ought to be considered in respect both of force and permanency. But, before we can speak of the force or intensity of the existing stimuli at any time, it will be necessary to obviate the inconsistency above alluded to, in calling those things stimuli, or exciting powers, which produce sedative or debilitating effects. If it were possible to exhibit any substance entirely void of heat, or to conceive a total absence of internal stimuli during life; and if we had terms to denote these circumstances, in various degrees of intensity, which is obviously absurd and impossible, then might we employ the terms "*power of cold*," "*directly debilitating powers*," &c. without outraging the common acceptation of terms. The author of this system has been accused of a want of precision in this respect.

No person can doubt, that an abstraction of the cheerful passions, of heat, or of necessary food, may directly and immediately produce debility. This is the debility arising from deficient stimuli, and called by Dr. Brown *direct debility*. But as this state of the system is found to be more susceptible of the operation of stimuli than the healthy state, it is inferred that the *excitability is accumulated*; so that *direct debility* and *accumulated excitability* are employed as equivalent terms.

When the energy of the system has been diminished, or debility produced, in consequence of the inordinate application of stimuli,

as of joy, heat, voluntary motion, wine, opium, &c. this debility, as being *consequent* to unusual excitement, is called *indirect debility*, or *exhausted excitability*.

According to this system, health, and continued vigorous action of the body, depend upon a due balance or proportion between the stimuli and excitability, so that the latter may neither accumulate nor be exhausted for many hours together. It therefore follows, that all disease arises from a morbid accumulation or exhaustion of the excitability, or from direct or indirect debility. And as two different degrees of excitement cannot possibly exist in the same person simultaneously, it is impossible that two different constitutional diseases should be present at the same time.

From this short sketch of the causes of health and disease, according to this system, it will be obvious, that the preservation of the former, or the cure of the latter, must principally depend on due application of stimuli.

If time and experience had reduced this to fixed rules, nothing would be wanted to the completion of the Brunonian doctrine. In order to explain this part of the subject to the younger class of our readers, we shall adduce a few instances.

If a person who had been confined for several years in a cold and dark dungeon, and fed on bread and water, were committed to our care, or cure, for the state of his system could not be that of health, though no specific disease may be actually present, we should not expose his eyes to the glare of the sun, his body to the hot bath, his limbs to fatigue, or his stomach to fermented liquors. In the practice to be adopted, all are agreed; but the Brunonian explains it in this manner:—The excitability being accumulated in so inordinate a degree, the stimuli to be adopted must not exceed those usually applied to a new born child, otherwise a fatal inflammation, or sudden death, would ensue. But if the stimuli of light, motion, and food, be applied at first in very low degrees, the excitability may be gradually brought down to the common standard, and of course become capable of bearing the stimuli usually applied to healthy persons.

If, on the contrary, we found a patient who had been affected for several days with jail fever, and reduced to as great a degree of debility as could be compatible with life, the whole profession would agree in the mode of treatment; that is, in applying warmth, or blisters, externally, and in giving brandy, wine, spices, opium, æther, bark, &c. in appropriate doses, internally. The Brunonian justifies and explains this practice, by stating, that the excitability is so rapidly and inordinately exhausted in these fevers, that an excitement compatible with the continuance of life, and restoration of health, can alone be produced and supported by the most powerful and diffusible stimuli.

We perceive, then, that the cure of all diseases, according to this

system, consists in proportioning the stimuli to the degree of excitability present in the patient, till healthy excitement is restored.—As a general rule, we are advised to apply the stimuli in the inverse ratio of the excitability, in order to produce the most salutary action, or excitement of the system. Dr. Brown and his adherents explain this in the following manner. They suppose any state of the excitability compatible with the continuance of life in the extremes, or with health in the middle of the scale, may be represented by the common numbers, from 1 to 19; and that the different degrees of stimuli which may be applied to it, to restore or preserve health, may also be represented by the same numbers in the inverted order.—Thus,

Excitability, or Predisposition.		Sum of Stimuli.		Product, or Excitement.			
Accumulation.	20	—	0	—	0	death	A
	19	—	1	—	19	—	B
	18	—	2	—	36	—	C
	17	—	3	—	51	—	D
	16	—	4	—	64	—	E
	15	—	5	—	75	—	F
	14	—	6	—	84	—	G
Health.	13	—	7	—	91	—	H
	12	—	8	—	96	—	I
	11	—	9	—	99	—	K
	10	—	10	—	100	—	L
	9	—	11	—	99	—	M
	8	—	12	—	96	—	N
	7	—	13	—	91	—	O
Exhaustion.	6	—	14	—	84	—	P
	5	—	15	—	75	—	Q
	4	—	16	—	64	—	R
	3	—	17	—	51	—	S
	2	—	18	—	36	—	T
	1	—	19	—	19	—	U
	0	—	20	—	0	death	V

Direct debility. Limits of health. Indirect debility.

From (A) to (G) includes those diseases which arise from the abstraction of necessary stimuli, as scurvy, petechiæ sine febre, &c. and points out the degree of stimulus necessary to restore health.

From (H) to (O) includes those variations which may be considered as compatible with health, while the corresponding stimuli are applied; but if inordinate or disproportionate stimuli be applied, in any state of the excitement, disease may be induced.

From (P) to (V) comprises the degrees of exhausted excitability, or indirect debility, to the account of which almost the whole catalogue must be placed; for the diseases arising from accumulation

often suddenly pass into those of exhaustion, in consequence of excessive stimuli.

From the above statement of this system, as far as respects the cure of diseases, it will be obvious, that the doses, as well as the medicines themselves, must be regulated by the state of the excitability; and that in ascertaining this state and proportioning the stimuli to it, is the only field in which the practitioner can exercise his skill and judgment.

Professor HUFELAND admits, in concurrence with many other eminent physicians in Germany and England, that the inventor of this doctrine was a man of considerable genius, and that his theory is replete with novel and excellent ideas; notwithstanding which, it by no means merits the name of a *system*, as it every-where presents evident chasms and defects. The *constituent* part of medicine, as an art, must necessarily rest on the observation of facts, or what we call experience; theory is of service merely in the *regulative* part of it, and must invariably accommodate itself to fresh modifications and changes, whenever experience shall pronounce them necessary. The Brunonian doctrine appears very plausible and consistent in theory, but is liable to this material objection, that it frequently and essentially disagrees with matters of fact and experience. The principal point, therefore, to be considered is, whether the Brunonian mode of representing subjects in medicine has a tendency to facilitate the acquisition of medical knowledge, and to improve the method of curing diseases?

The learned professor seems inclined to put a negative on this question; and observes, that Brown's division of diseases into *sthenic* and *asthenic*, is only *apparently* simple and easy, but that it is in *reality* a matter of considerable doubt and difficulty to distinguish them from one another with precision; and there are certain distempers, in which it is almost impossible to trace and discover the symptoms of the sthenic and asthenic constitution. It is further difficult to establish clearly, where there is *direct*, and where there is *indirect* debility; to ascertain to what degree this subsists in the body, and determine what species of stimulus ought to be applied to it. In our opinion, medicine can derive little *positive* advantage from the multiplication of theories, however ingeniously framed, if they be not founded on the basis of actual observation and experience. Instead of indulging the modern rage for *generalization*, we ought previously to collect a sufficient number of analogous facts; and, being in possession of these, we might gradually and cautiously venture to reduce them to particular classes, orders, &c. But as this result presupposes long and attentive investigation, by a cool, persevering, and unprejudiced mind (circumstances and qualifications but rarely united in *one* individual), there is little hope of seeing a *theory* of medicine or a *System of Nosology* established, which, in the present progressive state of medical and physical science, will

be found of such unperishable materials, as to stand the test of future ages.

Whoever is anxious to obtain celebrity, and *really improve the practice of the healing art*, will find it no easy matter to accomplish this desirable end by solitary disquisitions in his study-room: he must range through a circle of patients; examine and consult with them; and these, again, in like manner, with him. Old and experienced practitioners will readily discover whether the author or founder of a system be in fact a stranger to the diseases he attempts to define or arrange; if in only a few instances they espy his weak side, and find his account of the progress of a disease inconsistent with the path of nature, his pretensions are instantly decried, and his whole system is placed on the condemned list. Brown was a *luxuriant genius*, and his medical eccentricities frequently exhibit somewhat of a marvellous, if not even a monstrous, appearance. We may, however, easily understand how it happens that this *soi-disant* system is now so fondly caressed and honoured with approbation, especially by young practitioners, before they can have treasured up a fund of original experience; as thus fortified, they approach the bed of the patient with a certain conscious air of veteran firmness. In the aphoristical doctrines of Bruno, they find every subject of this complicated art treated in a much easier, more concise, and convenient manner, than in the old-standing authorities of former ages: instead of studying, in well-arranged elementary treatises, the nature of every disease, according to its different stages, symptoms, &c. and making themselves acquainted with methods of cure adapted to the particular state of the disorder, as well as the peculiar constitution, temperament, and external conditions of the patient; they congratulate themselves that such diffuseness is *now* perfectly unnecessary, innumerable diseases being classed under one head, and treated in a similar manner, in this comprehensive mode of classification; for instance, in hæmoptysis, as well as in diarrhœa, hysterics, &c. &c. Dr. Brown indiscriminately recommends the use of chalybeates, rum, opium, and the like. This, surely, will be more readily understood in theory, and followed in practice, than the old elaborate or pedantic diffuseness, by which the study of medicine is rendered difficult to the tyro, and the practice of it puzzling, if not baffling, to the beginner.

NOSOLOGY;

OR,

THE CLASSIFICATION OF DISEASES.

MEDICINE has been justly defined the art of preventing, curing, and alleviating diseases. While these, however, are in number almost infinite, each in its progress is also marked by almost endless varieties, from difference of climate, treatment, and many other particulars. Hence arise both the difficulty of distinguishing morbid affections from each other in actual practice, and the *diversity of names* which have been given them in the writings of ancient physicians. It may readily be supposed, that in this as well as other subjects, there has been a gradual improvement from the progressive labours of industrious and ingenious men. And although much yet remains to be done in the proper arrangement and distinction of diseases, or what has been called *methodical nosology*, yet there cannot be a doubt, that during the course of the present century this subject has received very great improvements. For these, we are in the first place highly indebted to the labours of Franciscus Boissier de Sauvages, an eminent professor of medicine at Montpellier, who, following out an idea suggested by the great Sydenham, first successfully attempted to arrange diseases, as botanists had done plants, into classes, orders, genera, and species. Since the publication of the *Nosologia Methodica* of Sauvages, this subject has been successfully cultivated by several ingenious men, particularly by Sir Charles Linnæus of Upsal, to whose genius for arrangement every branch of natural history, but botany in particular, has been so highly indebted; by Rudolphus Augustus Vogel, an eminent professor at Gottingen; and by John Baptist Sagar, a distinguished physician at Inglaw in Moravia.

It may not be improper here briefly to enumerate the general classes to which each of them has referred the affections of the human body.

The classes of SAUVAGES are,

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|----------------|------------------|---------------|
| 1. Vitia. | 5. Anhelationes. | 8. Vefaniæ. |
| 2. Febres. | 6. Debilitates. | 9. Fluxus. |
| 3. Phlegmasiæ. | 7. Dolores. | 10. Cachexiæ. |
| 4. Spasmi. | | |

The classes of LINNÆUS are,

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|-------------------|------------------|-----------------|
| 1. Exanthematici. | 5. Mentales. | 9. Evacuatorii. |
| 2. Critici. | 6. Quietales. | 10. Deformes. |
| 3. Phlogistici. | 7. Motorii. | 11. Vitia. |
| 4. Dolorosi. | 8. Suppressorii. | |

The classes of VOGEL are,

- | | | |
|----------------|-----------------|-------------------|
| 1. Febres. | 5. Spasmi. | 9. Paranoiæ. |
| 2. Profluvia. | 6. Adynamiæ. | 10. Vitia. |
| 3. Episcaphes. | 7. Hyperæheses. | 11. Deformitates. |
| 4. Dolores. | 8. Cachexiæ. | |

The classes of SAGAR are.

- | | | |
|--------------|-------------------|------------------|
| 1. Vitia: | 6. Suppressiones. | 10. Exanthemata. |
| 2. Plagæ. | 7. Spasmi. | 11. Phlegmasiæ. |
| 3. Cachexiæ. | 8. Anhelationes. | 12. Febres. |
| 4. Dolores. | 9. Debilitates. | 13. Vefaniæ. |
| 5. Fluxus. | | |

But of all the systems of arrangement yet presented to the medical world, the following, by the illustrious CULLEN, may justly be considered as the best. In treating, therefore, hereafter, of the diseases to which the human body is subject, we shall follow his plan, endeavouring to introduce also the best-established observations of others respecting the history, theory, and practice of each.

CLASS I. PYREXIÆ. A frequent pulse coming on after an horror; considerable heat; many of the functions injured; the strength of the limbs especially diminished.

ORDER I. Febres. Pyrexia without any primary local affection, following languor, lassitude, and other symptoms of debility.

Sect. I. Intermittentes. Fevers arising from the miasma of marshes; with an apyrexia, or at least a very evident remission; but the disease returns constantly, and for the most part with a horror or trembling. There is only one paroxysm in a day.

Genus I. Tertian. Similar paroxysms at an interval of about 48 hours, coming on most commonly at mid-day. A tertian hath either ;

1. An apyrexia interposed ;

1. Varying the duration of the paroxysms.

A. The tertian whose paroxysms are not extended beyond 12 hours.

B. The tertian with paroxysms extended beyond 12 hours.

2. Varying in the return of the paroxysms.

C. The tertian returning every day with unequal paroxysms alternately similar to one another.

D. The tertian returning every third day with two paroxysms on the same day.

E. The tertian returning every day, with two paroxysms on every third day, and only one on the intermediate ones.

F. The tertian returning every day, with a notable remission interposed between the odd and the even days, but a less remarkable one between the even and the odd one.

3. Varying in its symptoms.

G. The tertian accompanied with a disposition to sleep.

H. Accompanied with spasms and convulsive motions.

I. Accompanied with an efflorescence on the skin.

K. With phlegmasia.

4. Varying in being complicated with other diseases.

5. Varying as to its origin.

II. With the interposition only of a remission between the paroxysms.

Genus II. Quartana. Similar paroxysms, with an interval of about 72 hours, coming on in the afternoon.

I. With the interposition of an apyrexia.

1. Varying in the type.

A. The quartan with single paroxysms, returning every fourth day, none on the other days.

B. With two paroxysms every fourth day, and none on the other days.

C. With three paroxysms every fourth day, and none on the intermediate days.

D. Of the four days having only the third free from fever, with similar paroxysms every fourth day.

E. The quartan coming on every day, with similar paroxysms every fourth day.

2. Varying in its symptoms.

3. Varying in being complicated with other diseases.

II. With a remission only between the paroxysms.

Genus III. *Quotidiana*. Similar paroxysms with an interval of about 24 hours, coming on in the morning.

I. With the interposition of an apyrexia.

1. Varies in being solitary.

A. Universal.

B. Partial.

2. Complicated with other diseases.

II. With a remission only between the paroxysms.

SECT. II. *Continuæ*. Fevers without any intermission, and not occasioned by marsh miasmata; attended with exacerbations and remissions, though not very remarkable.

Genus IV. *Synocha*. Great heat; a frequent, strong, and hard pulse; high-coloured urine; the functions of the sensorium a little disturbed.

Genus V. *Typhus*. A contagious disease; the heat not greatly above the natural; the pulse small, weak, and for the most part frequent; the urine little changed; the functions of the sensorium very much disturbed, and the strength greatly diminished.

The species are,

I. *Typhus petechialis*. Typhus for the most part with petechiæ. Varying in degree. 1. Mild typhus. 2. Malignant typhus.

II. *Typhus icterodes*. Typhus with a yellowness of the skin.

Genus VI. *Synochus*. A contagious disease. A fever composed of a synocha and typhus; in the beginning a synocha, but towards the end a typhus.

ORDER II. *Phlegmasiæ*. A synocha fever, with inflammation or topical pain, the internal function of the part being at the same time injured; the blood covered with size.

Genus VII. *Phlogosis*. Pyrexia: redness, heat, and painful tension of some external part.

The species are,

I. *Phlogosis (phlegmone)* of a vivid red colour; a swelling well defined, for the most part elevated to a point, and frequently degenerating into an abscess, with a beating or throbbing pain.

The variations are, 1. In the form. 2. In the situation.

II. *Phlogosis (erythema)* of a reddish colour, vanishing upon pressure; an unequal and creeping circumference, with scarce any swelling; ending in the scaling off of the cuticle, in *phlyctenæ*, or blisters.

The variations are, 1. In the degree of violence. 2. In the remote cause. 3. In being complicated with other diseases.

The consequences of a phlogosis are, an imposthume, gangrene, sphacelus.

Genus VIII. Ophthalmia. A redness and pain of the eye, with an inability to bear the light; for the most part with an effusion of tears.

The species and varieties of the ophthalmia are,

I. Idiopathic,

1. Ophthalmia (*membranarum*) in the tunica adnata, and the membranes lying under it, or the coats of the eye.
 - A. Varying in the degree of the external inflammation.
 - B. In the internal coats affected.
2. Ophthalmia (*tarfi*) of the eye-lids, with swelling, erosion, and glutinous exudation.

II. Symptomatic.

1. From a disease of the eye itself.
2. From diseases of other parts, or of the whole body.

Genus IX. Phrenitis. Violent pyrexia; pain of the head; redness of the face and eyes; inability to endure the light or any noise; watchfulness; a fierce delirium, or typhomania.

I. Idiopathic.

II. Symptomatic.

Genus X. Cynanche. Pyrexia sometimes inclining to a typhus; difficulty of swallowing and breathing; with a sensation of narrowness in the fauces.

The species are,

I. Cynanche (*tonsillaris*) affecting the mucous membrane of the fauces, but especially the tonsils, with redness and swelling, accompanied with a synocha.

II. Cynanche (*maligna*) affecting the tonsils and mucous membrane of the fauces with swelling, redness, and mucous crusts of a whitish or ash colour, creeping, and covering ulcers; with a typhus fever and exanthemata.

III. Cynanche (*trachealis*) attended with difficult respiration, noisy and hoarse inspiration, loud cough, without any apparent tumour in the fauces, somewhat difficult deglutition, and a synocha.

IV. Cynanche (*pharingæa*) attended with redness in the bottom of the fauces, very difficult and painful deglutition, respiration sufficiently free, and a synocha.

V. Cynanche (*parotidæa*) with great swelling of the parotids and maxillary glands appearing on the outside: the respiration and deglutition but little injured; a synocha, for the most part mild.

Diseases of this genus are symptomatic, either from external or internal causes.

Genus XI. Pneumonia. Pyrexia, with a pain in some part of the thorax, difficult respiration, and cough. The species are,

I. Peripneumony, with a pulse not always hard, but sometimes soft; an obtuse pain of the breast; the respiration always difficult; sometimes the patient cannot breathe unless in an upright posture; the face swelled, and of a livid colour; the cough for the most part moist, frequently bloody.

1. Simple idiopathic peripneumonies.

Varying in degree.

2. Idiopathic peripneumonies complicated with fever.

3. Symptomatic peripneumonies.

II. Pleurisy, with a hard pulse; for the most part attended with a pungent pain of one side, augmented chiefly during the time of inspiration; an uneasiness when lying on the side; a most painful cough, dry in the beginning of the disease, afterwards moist, and frequently bloody.

1. Simple idiopathic pleurifies.

2. Pleurifies, complicated. (1.) With fever. (2.) With catarrh.

3. Symptomatic pleurifies.

4. False pleurifies.

The consequences of pleurisy are a vomica or empyema.

Genus XIII. Carditis. Pyrexia; pain about the heart; difficulty of breathing; cough; unequal pulse; palpitation of the heart, and fainting.

I. Idiopathic.

II. Symptomatic.

Genus XIV. Peritonitis. Pyrexia; pain of the belly, exasperated by an upright posture, without the proper signs of other abdominal phlegmasiæ. If the diagnostics of the following diseases are given, they may be reckoned as so many species of this genus.

I. Peritonitis (*propria*) situate in the peritonæum, properly so called, surrounding the inside of the abdomen.

II. Peritonitis (*omentalis*) in the peritonæum extended through the omentum.

III. Peritonitis (*mesenterica*) in the peritonæum spread through the mesentery.

Genus XV. Gastritis. Pyrexia inclining to a typhus; anxiety; pain and heat of the epigastrium, augmented when any thing is taken into the stomach; an inclination to vomit, and an immediate rejection of every thing swallowed; an hiccup.

I. Idiopathic.

1. From internal causes.

A. Gastritis (*phlegmonodæa*) attended with acute pain and violent pyrexia.

2. From external causes.

B. Gastritis (*erysipelatoſa*), with a leſs violent fever and pain; an eryſipelatous redneſs appearing on the fauces.

II. Symptomatic.

Genus XVI. Enteritis. Pyrexia of a typhous nature; pungent pain of the belly, ſtretching and twiſting round the navel; vomiting; the belly obſtinately bound.

I. Idiopathic.

1. Enteritis (*phlegmonodæa*), with acute pain, violent fever, vomiting, and conſtipation of the belly.

2. Enteritis (*eryſipelatoſa*), with leſs acute fever and pain, without vomiting; but accompanied with a diarrhœa.

II. Symptomatic.

Genus XVII. Hepatitis. Pyrexia; tenſion and pain of the right hypochondrium; ſometimes pungent like that of a pleuriſy, but more frequently obtuſe; a pain reaching to the clavicle and top of the right ſhoulder; a difficulty of lying on the left ſide; dyspnœa; dry cough, vomiting and hickup.

Genus XVIII. Splenitis. Pyrexia; tenſion, heat, and ſwelling of the left hypochondrium, the pain increaſing by preſſure; without the ſigns of nephritis.

Genus XIX. Nephritis. Pyrexia; pain in the region of the kidney, often following the courſe of the ureter; frequent making of water, either thin and colourleſs, or very red; vomiting; ſtupor of the thigh; with a retraction or pain of the teſticle of the ſame ſide. The ſpecies are,

I. Idiopathic. Spontaneous.

II. Symptomatic.

Genus XX. Cystitis. Pyrexia; pain and ſwelling of the hypogastrium; frequent and painful making of water, or iſchuria; and tenefmus. The ſpecies are,

I. Thoſe ariſing from internal cauſes.

II. Thoſe from external cauſes.

Genus XXI. Hyſteritis. Pyrexia; heat, tenſion, ſwelling, and pain of the hypogastrium; the os uteri painful when touched; vomiting.

Genus XXII. Rheumatismus. A diſeaſe ariſing from an external and frequently very evident cauſe; pyrexia; pain about the joints, frequently purſuing the courſe of the muſcles; infeſting the knees and other large joints rather than thoſe of the feet or hands; increaſed by external heat.

The ſpecies are either idiopathic or ſymptomatic. The former varies in ſituation.

A. In the muſcles of the loins.

B. In the muſcles of the coxendix.

C. In the muſcles of the breath.

Genus XXIII. *Odontalgia*; a rheumatism of the jaws from a caries of the teeth.

Genus XXI. *Podagra*. An hereditary disease, arising without any evident external cause, but for the most part preceded by an unusual affection of the stomach; pyrexia; pain of a joint or the most part of the great toe of the foot, at least infesting chiefly the wrists and ankles; returning by intervals; and often alternated with affections of the stomach and other internal parts.

I. *Podagra (regularis)*, with a pretty violent inflammation of the joints remaining for some days, and by degrees going off with swelling, itching, and desquamation of the affected part.

II. *Podagra (atonica)*, with an atony of the stomach or some other internal part; and either without the usual inflammation of the joints, or only with slight and wandering pains; and frequently alternated with dyspepsia, or other symptoms of atony.

III. *Podagra (retrograda)*, with the inflammation of the joints suddenly receding, and an atony of the stomach and other parts immediately following.

IV. *Podagra (aberrans)*, with the inflammation of an internal part either preceding or not, and suddenly receding; with an inflammation of the joints.

Genus XXV. *Arthropoifis*. Deep, obtuse, and long-continued pains of the joints or muscular parts, frequently following contusions, with either no swelling, or a moderate and diffused one; no phlogosis; pyrexia, at first gentle, afterwards hectic, and at length an imposthume.

ORDER III. *Exanthemata*. Contagious diseases; affecting a person only once in his life; beginning with fever; after a certain time appear phlogosis, for the most part small and in considerable number, and dispersed over the skin.

Genus XXVI. *Erysipelas*. A synocha of two or three days, for the most part attended with drowsiness, often with a delirium. In some part of the skin, most frequently the face, appears a phlogosis *erythema*. (G. VII. Sp. 2.) The species are,

I. *Erysipelas (vesiculosum)*, with erythema, redness creeping, occupying a large space, and in some parts ending in large blisters.

II. *Erysipelas (phlyctenodes)*, with an erythema formed of a number of papulæ, chiefly occupying the trunk of the body, ending in phlyctenæ or small blisters.

The disease is also symptomatic.

Genus XXVII. *Pestis*. An exceedingly contagious typhus, with the highest debility. On an uncertain day of the

disease buboes and carbuncles break forth. It is various in degree, but the species are uncertain.

Genus XXVIII. Variola; a contagious synocha, with vomiting, and pain on pressing the epigastrium. On the third day begins, and on the fifth is finished, the eruption of inflammatory pustules, which suppurate in the space of eight days, and at last go off in crusts, frequently leaving depressed cicatrices or pockpits in the skin. The species are,

I. *Variola (discreta)*, with few, distinct, lurid pustules, having circular bases; the fever ceasing immediately after the eruption.

II. *Variola (confluent)*, with numerous, confluent, irregularly shaped pustules, itacid, and little elevated; the fever remaining after the eruption.

Genus XXIX. Varicella. Synocha; papule breaking out after a short fever, similar to those of the small-pox, but hardly ever coming to suppuration; after a few days going off in small scales, but never leaving any mark.

Genus XXX. Rubeola. A contagious synocha, with sneezing, epiphora, and dry hoarse cough. On the fourth day, or a little later, break forth small, clustered, and scarce elevated papule; after three days going off in very small branny scales.

I. *Rubeola (vulgaris)*, with very small confluent, corymbose papule, scarce rising above the skin.

Varying,

1. In the symptoms being more severe, and the course of the disease less regular.

2. In being accompanied with a quinsey.

3. With a putrid diathesis.

II. *Rubeola (varioides)*, with distinct papule, raised above the skin.

Genus XXXI. Miliaria. Synochus with anxiety, frequent sighing, fetid sweat, and points on the skin. On an uncertain day of the disease break out red, small, distinct papule, spread over the whole body as well as the face, the apices of which, after one or two days, become very small white pustules, remaining for a short time.

Genus XXXII. Scarlatina. A contagious synocha. On the fourth day of the disease the face swells a little; at the same time an universal redness occupies the skin in large spots, at length running together; after three days going off in branny scales; frequently succeeded by an anasarca. The species are,

I. *Scarlatina (simplex)*, not accompanied with cynanche.

II. *Scarlatina (cynanchica)*, with an ulcerous cynanche.

Genus XXXIII. *Urticaria*. An amphemerina fever. On the second day of the disease red spots resembling the stinging of nettles, almost vanishing during the day, but returning in the evening with the fever, and after a few days going off altogether in very small scales.

Genus XXXIV. *Pemphigus*. A contagious typhus. On the first, second, or third day of the disease, blisters break out in several parts of the body, of the bigness of a bean, remaining for many days, and at last pouring out a thin ichor.

Genus XXXV. *Aptha*. *Synochus*; the tongue somewhat swelled and of a livid colour, as well as the fauces; eschars first appearing in the fauces, but at length occupying the whole internal part of the mouth, of a white colour, sometimes distinct, often running together; quickly growing again when taken off, and remaining for an uncertain time.

The species are, 1. Idiopathic. 2. Symptomatic.

ORDER IV. *Hæmorrhagiæ*. Pyrexia, with a profusion of blood, without any external violence: the blood drawn from a vein hath the same appearance as in *phlegmasiæ*.

Genus XXXVI. *Epistaxis*. Pain or weight of the head, redness of the face; a profusion of blood from the nose.

I. Idiopathic.

Varying according to the time of life.

1. *Epistaxis* of young people, with symptoms of an arterious plethora.
2. *Epistaxis* of old people, with symptoms of a venous plethora.

II. Symptomatic.

1. From internal causes.
2. From external causes.

Genus XXXVII. *Hæmoptysis*. Redness of the cheeks; a sensation of uneasiness, or pain, and sometimes of heat in the breast; difficulty of breathing; tickling of the fauces; either a severe or less violent cough, bringing up florid and frequently frothy blood.

The idiopathic species are,

1. *Hæmoptysis* (*plethorica*), without any external violence, and without being preceded by any cough or suppression of any customary evacuation.
2. *Hæmoptysis* (*violenta*), from external violence applied.
3. *Hæmoptysis* (*phthifica*), after a long continued cough, with a leanness and debility.
4. *Hæmoptysis* (*calculosa*), in which some calculous molecules, for the most part of a calcareous nature, are thrown up.

5. *Hæmoptysis (vicaria)*, after the suppression of a customary evacuation.

Besides these, there are a number of symptomatic species mentioned by different authors. The consequence of an hæmoptysis is, a

Phthisis. A wasting and debility of the body, with a cough, hectic fever, and for the most part a purulent expectoration. The species are,

I. An incipient phthisis, without any expectoration of pus.

II. A confirmed phthisis, with an expectoration of pus.

Both species vary, 1. As to their remote cause. 2. As to the origin of the purulent matter.

Genus XXXVIII. *Hæmorrhoids*. Weight and pain of the head; vertigo; pain of the loins; pain of the anus; livid painful tubercles, from which for the most part blood flows out; which sometimes also drops out of the anus, without any apparent tumor.

1. *Hæmorrhoids (tumens)*, external from mariscæ.

Varying.

A. Bloody.

B. Mucous.

2. *Hæmorrhoids (procidens)*, external from a *procidencia ani*.

3. *Hæmorrhoids (fluens)*, internal, without any swelling, or *procidencia ani*.

4. *Hæmorrhoids (cæca)*, with pain and swelling of the anus, without any profusion of blood.

Genus XXXIX. *Menorrhagia*. Pains of the back, belly, and loins, like those of child-birth; an unusually copious flux of the menses or blood from the vagina. The species are,

1. *Menorrhagia (rubra)*, bloody in women neither with child nor in child-birth.

2. *Menorrhagia (abortus)*, bloody in women with child.

3. *Menorrhagia (lochialis)*, bloody in women after delivery.

4. *Menorrhagia (vitiorum)*, bloody from some local disease.

5. *Menorrhagia (alba)*, serous, without any local disease, in women not with child.

6. *Menorrhagia (Nabothi)*, serous in women with child.

ORDER V. *Profluvia*. Pyrexia, with an increased secretion, naturally not bloody.

Genus XL. *Catarrhus*. Pyrexia frequently contagious; an increased excretion of mucus, at least efforts to excrete it.

The species are for the most part symptomatic.

1. From cold.

2. From contagion.

Genus XLI. Dysentaria. Contagious pyrexia ; frequent mucous or bloody stools, while the alvine fæces are for the most part retained ; gripes ; tenesmus.

Varying :

1. Accompanied with worms.
2. With the excretion of small fleshy or sebaceous bodies.
3. With an intermittent fever.
4. Without blood.
5. With miliary fever.

CLASS II. NEUROSES. An injury of the sense and motion, without an idiopathic pyrexia or any local affection.

ORDER I. Comata. A diminution of voluntary motion, with sleep, or a deprivation of the senses.

Genus XLII. Apoplexia. Almost all voluntary motion diminished, with sleep more or less profound ; the motion of the heart and arteries remaining.

The idiopathic species are,

1. Apoplexia (*sanguinea*), with symptoms of universal plethora, especially of the head.
2. Apoplexia (*serosa*), with a leucophlegmatia over the whole body, especially in old people.
3. Apoplexia (*hydrocephalica*), coming on by degrees ; affecting infants, or those below the age of puberty, first with lassitude, a slight fever and pain of the head, then with slowness of the pulse, dilatation of the pupil of the eye, and drowsiness.
4. Apoplexia (*atrabilaria*), taking place in those of a melancholy constitution.
5. Apoplexia (*traumatica*), from some external injury mechanically applied to the head.
6. Apoplexia (*venenata*), from powerful sedatives taken internally or applied externally.
7. Apoplexia (*mentalis*), from a passion of the mind.
8. Apoplexia (*cataleptica*), the muscles remaining contractile, by external motion of the limbs.
9. Apoplexia (*suffocata*), from some external suffocating power.

The apoplexia is frequently symptomatic,

1. Of an intermittent fever.
2. Continued fever.
3. Phlegmasia.
4. Exanthema.
5. Hysteria.
6. Epilepsy.
7. Podagra.
8. Worms.
9. Ichuria.
10. Scurvy.

Genus XLIII. Paralysis. Only some of the voluntary motions diminished, frequently with sleep.

The idiopathic species are,

1. Paralyſis (*partialis*), of ſome particular muſcles only.
2. Paralyſis (*hemiplegica*), of one ſide of the body.

Varying according to the conſtitution of the body.

- a. Hemiplegia in a plethoric habit.
- b. In a leucophlegmatic habit.
3. Paralyſis (*paraplegica*), of one half the body taken tranſverſely.
4. Paralyſis (*venenata*), from ſedative powers applied either internally or externally.

A ſymptom either of an Aſthenia or Palsy is,

Tremor; an alternate motion of a limb by frequent ſtrokes and intervals.

The ſpecies are, 1. Aſthenic. 2. Paralytic. 3. Convulſive.

ORDER II. Adynamixæ. A diminution of the involuntary motions, whether vital or natural.

Genus XLIV. Syncope; a diminution, or even a total ſtoppage, of the motion of the heart for a little while.

I. Idiopathic.

1. Syncope (*cardiaca*), returning frequently without any manifeſt cauſe, with violent palpitations of the heart during the intervals.—From a fault of the heart or neighbouring veſſels.
2. Syncope (*occasionalis*), ariſing from ſome evident cauſe.—From an affection of the whole ſyſtem.

II. Symptomatic; or ſymptoms of diſeaſes either of the whole ſyſtem, or of other parts beſides the heart.

Genus XLV. Dyspepſia. Anorexia, nauſea, vomiting, inflation, belching, rumination, cardialgia, gaſtrodynia, more or fewer of thoſe ſymptoms at leaſt concurring; for the moſt part with a conſtipation of the belly, and without any other diſeaſe either of the ſtomach itſelf or of other parts.

I. Idiopathic.

II. Symptomatic.

1. From a diſeaſe of the ſtomach itſelf.
2. From a diſeaſe of other parts, or of the whole body.

Genus XLVI. Hypochondriaſis. Dyspepſia, with languor, ſadneſs, and fear, without any adequate cauſes, in a melancholy temperament.

Genus XLVII. Chloroſis. Dyspepſia, or a deſire of ſomething not uſed as food; a pale or diſcoloured complexion; the veins not well filled; a ſoft tumor of the whole body; aſthenia; palpitation; ſuppreſſion of the menſes.

ORDER III. Spasmi. Irregular motions of the muscles or muscular fibres.

SECT. I. *In the animal functions.*

Genus XLVIII. Tetanus; a spastic rigidity of almost the whole body.

Varying according to the remote cause, as it arises either from something internal, from cold, or from a wound. It varies likewise, from whatever cause it may arise, according to the part of the body affected,

Genus XLIX. Trismus. A spastic rigidity of the lower jaw.—The species are,

1. Trismus (*nascentium*), seizing infants under two months old.
2. Trismus (*traumaticus*), seizing people of all ages either from a wound or cold.

Genus L. Convulsio.—An irregular clonic contraction of the muscles without sleep.

I. Idiopathic.

II. Symptomatic.

Genus LI. Chorea, attacking those who have not yet arrived at puberty, most commonly within the 10th or 14th year, with convulsive motions for the most part of one side in attempting the voluntary motion of the hands and arms, resembling the gesticulations of mountebanks; in walking, rather dragging one of their feet after them than lifting it.

Genus LII. Raphania. A spastic contraction of the joints, with a convulsive agitation, and most violent periodical pain.

Genus LIII. Epilepsia. A convulsion of the muscles, with sleep. The idiopathic species are,

1. Epilepsia (*cerebralis*), suddenly attacking without any manifest cause, without any sense of uneasiness preceding, excepting perhaps a slight vertigo or scotomia.
2. Epilepsia (*sympathica*), without any manifest cause, but preceded by the sensation of a kind of air arising from a certain part of the body towards the head.
3. Epilepsia (*occasionalis*), arising from a manifest irritation, and ceasing on the removal of that irritation.

Varying according to the difference of the irritating matter. And thus it may arise,

From injuries of the head; pain; worms; poison; from the repulsion of the itch; or an effusion of any other acrid humour; from crudities in the stomach; from passions of the mind; from an immoderate hemorrhagy; or from debility.

Sect. II. *In the vital functions.*

In the action of the heart.

Genus LIV. Palpitatio. A violent and irregular motion of the heart.

In the action of the lungs.

Genus LV. Asthma. A difficulty of breathing returning by intervals, with a sense of straightness in the breast, and a noisy respiration with hissing. In the beginning of the paroxysm there is either no cough at all, or coughing is difficult; but towards the end the cough becomes free, frequently with a copious spitting of mucus.—The idiopathic species are,

1. Asthma (*spontaneum*), without any manifest cause or other concomitant disease.
2. Asthma (*exanthematicum*), from the repulsion of the itch or other acrid effusion.
3. Asthma (*plethoricum*), from the suppression of some customary sanguineous evacuation, or from a spontaneous plethora.

Genus LVI. Dyspnœa. A continual difficulty of breathing, without any sense of straightness, but rather of fulness and infarction in the breast; a frequent cough throughout the whole course of the disease.

The idiopathic species are,

1. Dyspnœa (*catarrhalis*), with a frequent cough, bringing up plenty of viscid mucus.
2. Dyspnœa (*sicca*), with a cough for the most part dry.
3. Dyspnœa (*aërea*), increased by the least change of weather.
4. Dyspnœa (*terrea*), bringing up with the cough an earthy calculous matter.
5. Dyspnœa (*aquosa*), with scanty urine and œdematous feet; without any fluctuation in the breast, or other signs of an hydrothorax.
6. Dyspnœa (*pinguedinosa*), in very fat people.
7. Dyspnœa (*thoracica*), from an injury done to the parts surrounding the thorax, or from some bad conformation of them.
8. Dyspnœa (*extrinseca*), from evident external causes.

The symptomatic species of dyspnœa are symptoms

1. Of diseases of the heart or large vessels.
2. Of a swelling in the abdomen.
3. Of various diseases.

Genus LVII. Pertussis. A contagious disease; convulsive straggulating cough reiterated with noisy inspiration; frequent vomiting.

Sect. III. *In the natural functions.*

Genus LVIII. Pyrosis. A burning pain in the epigastrium, with plenty of aqueous humour, for the most part insipid, but sometimes acrid, belched up.

Genus LIX. Colica. Pain of the belly, especially twisting round the navel; vomiting; a constipation.

The idiopathic species are,

1. Colica (*spasmodica*), with retraction of the navel, and spasms of the abdominal muscles.

Varying, by reason of some symptoms superadded. Hence,

- a, Colica, with vomiting of excrements, or of matters injected by the anus.

- b, Colica, with inflammation supervening.

2. Colica (*pittonum*), preceded by a sense of weight or uneasiness in the belly, especially about the navel; then comes on the colic pain, at first slight and interrupted, chiefly augmented after meals: at length more severe and almost continual, with pains of the arms and back, at last ending in a palsy.

Varying according to the nature of the remote cause; and hence,

- a, From metallic poison.

- b, From acids taken inwardly.

- c, From cold.

- d, From a contusion of the back.

3. Colica (*stercorea*), in people subject to costiveness.

4. Colica (*accidentalis*), from acrid matter taken inwardly.

5. Colica (*meconialis*), in new-born children, from a retention of the meconium.

6. Colica (*callosa*), with a sensation of stricture in some part of the intestines, and frequently of a collection of flatus with some pain before the constricted part; which flatus also passing through the part where the stricture is felt, gradually vanishes; the belly slow, and at last passing only a few liquid fæces.

7. Colica (*calculosa*), with a fixed hardness in some part of the abdomen, and calculi sometimes passing by the anus.

Genus LX. Cholera. A vomiting of bilious matter, and likewise a frequent excretion of the same by stool; anxiety; gripes; spasms in the calves of the legs.

I. Idiopathic.

1. Cholera (*spontanea*), arising in a warm season, without any manifest cause.

2. Cholera (*accidentalis*), from acrid matters taken inwardly.

II. Symptomatic.

Genus LXI. *Diarrhœa*. Frequent stools; the disease not infection; no primary pyrexia.

I. *Idiopathic*.

1. *Diarrhœa (crapulosa)*, in which the excrements are voided in greater quantity than naturally.
2. *Diarrhœa (biliosa)*, in which yellow fæces are voided in great quantity.
3. *Diarrhœa (mucosa)*, in which either from acrid substances taken inwardly, or from cold, especially applied to the feet, a great quantity of mucus is voided.
4. *Diarrhœa (cœliaca)*, in which a milky humour of the nature of chyle is passed.
5. *Diarrhœa (lienteria)*, in which the aliments are discharged with little alteration soon after eating.
6. *Diarrhœa (hepatorrhœa)*, in which a bloody ferous matter is discharged without pain.

II. *Symptomatic*.

Genus LXII. *Diabetes*. A chronical profusion of urine, for the most part preternatural, and in immoderate quantity.

I. *Idiopathic*.

1. *Diabetes (mellitus)*, with urine of the smell, colour, and taste of honey.
2. *Diabetes (insipidus)*, with limpid, but not sweet urine.

II. *Symptomatic*.

Genus LXIII. *Hysteria*. Rumbling of the bowels; a sensation as of a globe turning itself in the belly, ascending to the stomach and fauces, and there threatening suffocation; sleep; convulsions; a great quantity of limpid urine; the mind involuntarily fickle and mutable.

The following are by Sauvages reckoned distinct idiopathic species; but, by Dr. Cullen, only varieties of the same species.

- A, From a retention of the menses.
- B, From a menorrhagia cruenta.
- C, From a menorrhagia serosa, or fluor albus.
- D, From an obstruction of the viscera.
- E, From a fault of the stomach.
- F, From too great salacity.

Genus LXIV. *Hydrophobia*. A dislike and horror at any kind of drink, as occasioning a convulsion of the pharynx; induced, for the most part, by the bite of a mad animal.

The species are,

- I. *Hydrophobia (rabiosa)*, with a desire of biting the by-standers, occasioned by the bite of a mad animal.
- II. *Hydrophobia (simplex)*, without madness, or any desire of biting.

ORDER IV. Vefaniæ. Disorders of the judgment, without any pyrexia or coma.

Genus LXV. Amentia; an imbecility of judgment, by which people either do not perceive, or do not remember, the relations of things. The species are,

- I. Amentia (*congenita*), continuing from a person's birth.
- II. Amentia (*senilis*), from the diminution of the perceptions and memory through extreme old age.
- III. Amentia (*acquistâ*), occurring in people formerly of a sound mind, from evident external causes.

Genus LXVI. Melancholia; a partial madness, without dyspepsia.

Varying according to the different subjects concerning which the person raves; and thus it is,

1. With an imagination in the patient concerning his body being in a dangerous condition, from slight causes; or that his affairs are in a desperate state.
2. With an imagination concerning a prosperous state of affairs.
3. With violent love, without satyriasis or nymphomania.
4. With a superstitious fear of a future state.
5. With an aversion from motion and all the offices of life.
6. With restlessness, and an impatience of any situation whatever.
7. With a weariness of life.
8. With a deception concerning the nature of the patient's species.

Dr. Cullen thinks that there is no such disease as that called *dæmonomania*, and that the diseases mentioned by Sauvages under that title are either,

1. Species of melancholy or mania; or
2. Of some disease by the spectators falsely ascribed to the influence of an evil spirit; or
3. Of a disease entirely feigned; or,
4. Of a disease partly true and partly feigned.

Genus LXVII. Mania; universal madness.

1. Mania (*mentalis*), arising entirely from passions of the mind.
2. Mania (*corporea*), from an evident disease of the body.

Varying according to the different disease of the body.

3. Mania (*obscura*), without any passion of the mind or evident disease of the body preceding.

The symptomatic species of mania are,

1. Paraphrosyne from poisons.
2. Paraphrosyne from passion.
3. Paraphrosyne febrilis.

Genus LXVIII. *Oneirodynia*. A violent and troublesome imagination in time of sleep.

1. *Oneirodynia (activa)*, exciting to walking and various motions.
2. *Oneirodynia (gravans)* from a sense of some weight incumbent, and pressing on the breast especially.

CLASS III. *CACHEXIÆ*; a depraved habit of the whole or greatest part of the body, without primary pyrexia or neurosis.

ORDER I. *Marcores*. A wasting of the whole body.

Genus LXIX. *Tabes*. Leanness, asthma, hectic pyrexia. The species are,

1. *Tabes (purulenta)*, from an external or internal ulcer, or from a vomica.

Varying in its situation: hence,

2. *Tabes (scrophulosa)*, in scrophulous constitutions.
3. *Tabes (venenata)*, from poison taken inwardly.

Genus LXX. *Atrophia*. Leanness and asthma, without hectic pyrexia.

The species are,

1. *Atrophia (inanitorum)*, from too great evacuation.
2. *Atrophia (famelicorum)*, from a deficiency of nourishment.
3. *Atrophia (cacochymica)*, from corrupted nourishment.
4. *Atrophia (debilium)*, from the function of nutrition being depraved, without any extraordinary evacuation or cacochymia having preceded.

ORDER II. *Intumescentiæ*. An external tumor of the whole or greatest part of the body.

SECT. I. *Adiposæ*.

Genus LXXI. *Polysarcia*; a troublesome swelling of the body from fat.

SECT. II. *Flatusæ*.

Genus LXXII. *Pneumatosis*. A tense elastic swelling of the body, crackling under the hand. The species are,

1. *Pneumatosis (spontanea)*, without any manifest cause.
2. *Pneumatosis (traumatica)*, from a wound in the breast.
3. *Pneumatosis (venenata)*, from poison injected or applied.
4. *Pneumatosis (hysterica)*, with hysteria.

Genus LXXIII. *Tympanites*. A tense, elastic, sonorous swelling of the abdomen; colliqueness; a decay of the other parts. The species are,

1. Tympanites (*intestinalis*), with a tumor of the abdomen frequently unequal, and with a frequent evacuation of air, relieving the tension and pain.
2. Tympanites (*abdominalis*), with a more evident noise, a more equable tumor, and a less frequent emission of flatus, which also gives less relief.

Genus LXXIV. Physometra. A slight elastic swelling in the epigastrium, having the figure and situation of the uterus.

Sect. III. *Aquosæ* or *Hydropes*.

Genus LXXV. Anasarca. A soft, inelastic swelling of the whole body, or some part of it. The species are,

1. Anasarca (*serosa*), from a retention of serum on account of the suppression of the usual evacuations, or from an increase of the serum on account of too great a quantity of water taken inwardly.
2. Anasarca (*oppilata*), from a compression of the veins.
3. Anasarca (*exanthematica*), arising after exanthemata, especially after the erysipelas.
4. Anasarca (*anæmia*), from the thinness of the blood produced by hemorrhagy.
5. Anasarca (*debilium*), in weak people after long diseases, or from other causes.

Genus LXXVI. Hydrocephalus. A soft inelastic swelling of the head, with the sutures of the cranium opened.

Genus LXXVII. Hydrorachitis. A soft slender tumor above the vertebræ of the loins; the vertebræ gaping from each other.

Genus LXXVIII. Hydrothorax. Dyspnœa; paleness of the face; œdematous swellings of the feet; scanty urine; lying down difficult; a sudden and spontaneous waking out of sleep, with palpitation; water fluctuating in the breast.

Genus LXXIX. Ascites. A tense, scarce elastic, but fluctuating swelling of the abdomen. The species are,

1. Ascites (*abdominalis*), with an equal swelling of the whole abdomen, and with a fluctuation sufficiently evident.

Varying according to the cause.

A, From an obstruction of the viscera.

B, From debility.

C, From a thinness of the blood.

2. Ascites (*saccatus*), with a swelling of the abdomen, in the beginning at least, partial, and with a less evident fluctuation.

Genus LXXX. Hydrometra. A swelling of the hypogastrium in women, gradually increasing, keeping the shape of the

uterus, yielding to pressure, and fluctuating; without ischuria or pregnancy.

Genus LXXXI. Hydrocele. A swelling of the scrotum, not painful; increasing by degrees, soft, fluctuating, and pellucid.

Sect. IV. *Solidæ*.

Genus LXXXII. Phlyctonia. A swelling chiefly occupying a certain part of the abdomen, gradually increasing, and neither sonorous nor fluctuating. The species are,

- Phlyctonia hepatica.
- Phlyctonia splenica.
- Phlyctonia renalis.
- Phlyctonia uterina.
- Phlyctonia ab ovario.
- Phlyctonia mesenterica.
- Phlyctonia intestinalis.
- Phlyctonia omentalis.
- Phlyctonia polysplachna.
- Phlyctonia visceralis.
- Phlyctonia externa lupialis.
- Phlyctonia externa scirrhouea.
- Phlyctonia externa hydatidosa.
- Phlyctonia ab adipe subcutaneo.
- Phlyctonia ab excrescentia.

Genus LXXXIII. Rachitis. A large head, swelling most in the forepart, the ribs depressed; abdomen swelled, with a decay of the other parts.

Varying,

1. Simple, without any other disease.
2. Joined with other diseases.

ORDER III. Impetigines. Cachexies chiefly deforming the skin and external parts of the body.

Genus LXXXIV. Scrophula. Swellings of the conglobate glands, especially in the neck; swelling of the upper lip and support of the nose; the face florid, skin thin, abdomen swelled. The species are,

1. Scrophula (*vulgaris*), simple, external, and permanent.
2. Scrophula (*mesenterica*), simple, internal, with paleness of the face, want of appetite, swelling of the abdomen, and unusual fetor of the excrements.
3. Scrophula (*fugax*), most simple, appearing only about the neck; for the most part proceeding from the resorption of the matter of ulcers in the head.
4. Scrophula (*Americana*), joined with the yaws.

Genus LXXXV. Syphilis. A contagious disease, after impure

venery, and a disorder of the genitals; ulcers of the tonsils; of the skin, especially about the margin of the hair; corymbose papulæ, ending in crusts and crusty ulcers; pains of the bones; exostoses.

Genus LXXXVI. Scorbutus. In cold countries, attacking after putrescent diet, especially such as is salt and of the animal kind, where no supply of fresh vegetables is to be had; asthenia; stomacace; spots of different colours on the skin, for the most part livid, and appearing chiefly among the roots of the hair.

Varying in degree.

- a, Scorbutus incipiens.
- b, Scorbutus crescens.
- c, Scorbutus inveteratus.

Varying also in symptoms.

- d, Scorbutus lividus.
- e, Scorbutus petechialis.
- f, Scorbutus pallidus.
- g, Scorbutus ruber.
- h, Scorbutus calidus.

Genus LXXXVII. Elephantiasis. A contagious disease; thick, wrinkled, rough, unctuous skin, destitute of hairs, anæsthesia in the extremities, the face deformed with pimples, the voice hoarse and nasal.

Genus LXXXVIII. Lepra. The skin rough, with white, branny, and chopped eschars, sometimes moist beneath, with itching.

Genus LXXXIX. Framboesia. Swellings resembling fungi, or the fruit of the mulberry or raspberry, growing on various parts of the skin.

Genus XC. Trichoma. A contagious disease; the hairs thicker than usual, and twisted into inextricable knots and cords.

Genus XCI. Icterus. Yellowness of the skin and eyes; white faces; urine of a dark red, tinging what is put into it of a clay-colour.

The idiopathic species are,

1. Icterus (*calculosus*), with acute pain in the epigastric region, increasing after meals; biliary concretions voided by stool.
2. Icterus (*spasmodicus*), without pain, after spasmodic diseases and passions of the mind.
3. Icterus (*hepaticus*), without pain, after diseases of the liver.
4. Icterus (*gravidarum*), arising during the time of pregnancy, and going off after delivery.

5. *Icterus (infantum)*, coming on in infants a few days after birth.

CLASS IV. *LOCALES*. An affection of some part, but not of the whole body.

ORDER I. *Dysæthesiæ*. The senses depraved or destroyed, from a disease of the external organs.

Genus XCII. *Caligo*. The sight impaired or totally destroyed, on account of some opaque substance interposed between the objects and the retina, inherent in the eye itself or the eyelids. The species are,

1. *Caligo (lentis)*, occasioned by an opaque spot behind the pupil.
2. *Caligo (corneæ)*, from an opacity of the cornea.
3. *Caligo (pupillæ)*, from an obstruction of the pupil.

Varying according to the different causes from which it proceeds,

4. *Caligo (humorum)*, from a disease or defect of the aqueous humour.

Varying according to the different states of the humour.

5. *Caligo (palpebrarum)*, from a disease inherent in the eyelids,

Varying according to the nature of the disease in the eye-lids.

Genus XCIII. *Amaurosis*. The sight diminished, or totally abolished, without any evident disease of the eye; the pupil for the most part remaining dilated and immoveable. The species are,

1. *Amaurosis (compressiōis)*, after the causes and attended with symptoms of congestion in the brain.

Varying according to the nature of the remote cause.

2. *Amaurosis (atonica)*, after the causes and accompanied with symptoms of debility,
3. *Amaurosis (spasmodica)*, after the causes and with the signs of spasm.
4. *Amaurosis (venenata)*, from poison taken into the body or applied outwardly to it.

Genus XCIV. *Dysopia*. A deprivation of the sight, so that objects cannot be distinctly perceived, except at a certain distance, and in a certain situation. The species are,

1. *Dysopia (tenebrarum)*, in which objects are not seen unless they be placed in a strong light.
2. *Dysopia (luminis)*, in which objects are not distinctly seen unless by a weak light.
3. *Dysopia (diffusorum)*, in which distant objects are not perceived.

4. *Dysopia (proximorum)*, in which the nearest objects are not perceived.
5. *Dysopia (lateralis)*, in which objects are not perceived unless placed in an oblique posture.

Genus XCV. *Pseudoblepsis*. When the sight is diseased in such a manner that the person imagines he sees things which really do not exist, or sees things which do exist after some other manner than they really are. The species are,

1. *Pseudoblepsis (imaginaria)*, in which the person imagines he sees things which really do not exist.

Varying according to the nature of the imagination.

2. *Pseudoblepsis (mutans)*, in which objects really existing appear somehow changed.

Varying according to the change perceived in the objects, and according to the remote cause.

Genus XCVI. *Dysecœa*. A diminution or total abolition of the sense of hearing. The species are,

1. *Dysecœa (organica)*, from a disease in the organs transmitting sounds to the internal ear.

Varying according to the nature of the disease and of the part affected.

3. *Dysecœa (atonica)*, without any evident disease of the organs transmitting the sounds.

Varying according to the nature of the cause.

Genus XCVII. *Paracusis*. A depravation of the hearing. The species are,

1. *Paracusis (imperfecta)*, in which though sounds coming from external objects are heard, yet it is neither distinctly nor in the usual manner.

Varying,

a, With a dulness of hearing.

b, With a hearing too acute and sensible.

c, When a single external sound is doubled by some internal causes.

d, When the sounds which a person desires to hear are not perceived, unless some other violent sound is raised at the same time.

2. *Paracusis (imaginaria)*, in which sounds not existing externally are excited from internal causes.

Varying according to the nature of the sound perceived, and according to the nature of the remote cause.

Genus XCVIII. *Anosmia*. A diminution or abolition of the sense of smell. The species are,

1. *Anosmia (organica)*, from a disease in the membrane lining the internal parts of the nostrils.

Varying according to the nature of the disease:

2. Anosinia (*atonica*), without any evident disease of the membrane of the nose.

Genus XCIX. Agheusia. A diminution or abolition of the sense of taste.

1. Agheusia (*organica*), from a disease in the membrane of the tongue, keeping off from the nerves those substances which ought to produce taste.
2. Agheusia (*atonica*), without any evident disease of the tongue.

Genus C. Anæsthesia. A diminution or abolition of the sense of feeling. The species from Sauvages, adopted by Dr. Cullen, are,

1. Anæsthesia a spina bifida.
2. Anæsthesia plethorica.
3. Anæsthesia nascentium.
4. Anæsthesia melancholica.

ORDER II. Dyforexia, Error or defect in appetite.

Sect. I. Appetitus erronei.

Genus CI. Bulimia. A desire for food in greater quantities than can be digested.

The idiopathic species are,

1. Bulimia (*helluonum*), an unusual appetite for food, without any disease of the stomach.
2. Bulimia (*syncopalis*), a frequent desire of meat, on account of a sensation of hunger threatening syncope.
3. Bulimia (*emetica*), an appetite for a great quantity of meat, which is thrown up immediately after it is taken.

Genus CII. Polydipsia. An appetite for an unusual quantity of drink.

The polydipsia is almost always symptomatic, and varies only according to the nature of the disease which accompanies it.

Genus CIII. Pica. A desire of swallowing substances not used as food.

Genus CIV. Satyriasis. An unbounded desire of venery in men. The species are,

1. Satyriasis (*juvenilis*), an unbounded desire of venery, the body at the same time being little disordered.
2. Satyriasis (*furens*), a vehement desire of venery, with a great disorder of the body at the same time.

Genus CV. Nymphomania. An unbounded desire of venery in women. Varying in degree.

Genus CVI. Nostalgia. A violent desire in those who are absent from their country of revisiting it.

1. Nostalgia (*simplex*), without any other disease.
2. Nostalgia (*complicata*), accompanied with other diseases.

Sect. II. Appetitus deficientes.

Genus CVII. Anorexia. Want of appetite for food. Always symptomatic.

1. Anorexia (*humoralis*), from some humour loading the stomach.
2. Anorexia (*atonica*), from the tone of the fibres of the stomach being lost.

Genus CVIII. Adipsia. A want of thirst. Always a symptom of some disease affecting the sensorium commune.

Genus CIX. Anaphrodisia. Want of desire for, or impotence to, venery. The true species are,

1. Anaphrodisia paralytica.
2. Anaphrodisia gonorrhoeica.

The false ones are,

1. Anaphrodisia a marasmo.
2. Anaphrodisia ab urethrae vitio.

ORDER III. Dyscinesia. An impediment, or depravation of motion from a disorder of the organs.

Genus CX. Aphonia. A total suppression of voice without coma, or syncope. The species are,

1. Aphonia (*gutturalis*), from the fauces or glottis being swelled.
2. Aphonia (*trachealis*), from a compression of the trachea.
3. Aphonia (*atonica*), from the nerves of the larynx being cut.

Genus CXI. Mutitas. A want of power to pronounce words. The species are,

1. Mutitas (*organica*), from the tongue being cut out or destroyed.
2. Mutitas (*atonica*), from the injuries done to the nerves of the tongue.
3. Mutitas (*surdorum*), from people being born deaf, or the hearing being destroyed during childhood.

Genus CXII. Paraphonia. A depraved sound of the voice. The species are,

1. Paraphonia (*puberum*), in which, about the time of puberty, the voice, from being acute and sweet, becomes more grave and harsh.
2. Paraphonia (*rauca*), in which, by reason of the dryness

or flaccid tumor of the fauces, the voice becomes rough and hoarse.

3. Paraphonia (*resonans*), in which, by reason of an obstruction in the nostrils, the voice becomes hoarse, with a sound hissing through the nostrils.
4. Paraphonia (*palatina*), in which, on account of a defect or division of the uvula, for the most part with an hare lip, the voice becomes obscure, hoarse, and unpleasant.
5. Paraphonia (*clangens*), in which the voice is changed to one acute, shrill, and small.
6. Paraphonia (*comatosa*), in which, from a relaxation of the velum palati and glottis, a sound is produced during inspiration.

Genus CXIII. *Pfellismus*. A defect in the articulation of words. The species are,

1. *Pfellismus (hæsitans)*, in which the words, especially the first ones of a discourse, are not easily pronounced, and not without a frequent repetition of the first syllable.
2. *Pfellismus (ringens)*, in which the sound of the letter R is always aspirated, and, as it were, doubled.
3. *Pfellismus (lallans)*, in which the sound of the letter L becomes more liquid, or is pronounced instead of R.
4. *Pfellismus (emolliens)*, in which the hard letters are changed into the softer ones, and thus the letter S is much used.
5. *Pfellismus (balbutiens)*, in which, by reason of the tongue being large, or swelled, the labial letters are better heard, and often pronounced instead of others.
6. *Pfellismus (acheilos)*, in which the labial letters cannot be pronounced at all, or with difficulty.
7. *Pfellismus (logostomatum)*, in which, on account of the division of the palate, the guttural letters are less perfectly pronounced.

Genus CXIV. *Strabismus*. The optic axes of the eyes not converging. The species are,

1. *Strabismus (habitualis)*, from a bad custom of using only one eye.
2. *Strabismus (commodus)*, from the greater debility or mobility of one eye above the other; so that both eyes cannot be conveniently used.
3. *Strabismus (pectusarius)*, from a change in the situation or shape of the parts of the eye.

Genus CXV. *Contractura*. A long-continued and rigid contraction of one or more limbs. The species are,

1. *Contractura (primaria)*, from the muscles becoming contracted and rigid.
 - a, From the muscles becoming rigid by inflammation.
 - b, From muscles becoming rigid by spasm.

- c, From muscles contracted by reason of their antagonists having become paralytic.
- d, From muscles contracted by an irritating acrimony.
- 2. Contractura (*articularis*), from stiff joints.

ORDER IV. Apocrenoses. A flux either of blood or some other humour flowing more plentifully than usual, without pyrexia, or an increased impulse of fluids.

Genus CXVI. Profusio. A flux of blood.

Genus CXVII. Ephidrosis. A preternatural evacuation of sweat.

Symptomatic ephidroses vary according to the nature of the diseases which they accompany, the different nature of the sweat itself, and sometimes the different parts of the body which sweat most.

Genus CXVIII. Epiphora. A flux of the lachrymal humour.

Genus CXIX. Ptyalismus. A flux of saliva.

Genus CXX. Enuresis. An involuntary flux of urine without pain.

- 1. Enuresis (*atonica*), after diseases injuring the sphincter of the bladder.
- 2. Enuresis (*irritata*), from a compression or irritation of the bladder.

Genus CXXI. Gonorrhœa. A preternatural flux of humour from the urethra in men, with or without a desire of venery. The species are,

- 1. Gonorrhœa (*pura*), in which, without any impure venery having preceded, a humour resembling pus, without dysuria or propensity to venery, flows from the urethra.
- 2. Gonorrhœa (*impura*), in which, after impure venery, an humour like pus flows from the urethra with dysuria. The consequence of this is,
- 3. Gonorrhœa (*mucosa*), in which, after an impure gonorrhœa, a mucous humour flows from the urethra, with little or no dysuria.
- 4. Gonorrhœa (*laxorum*), in which an humour for the most part pellucid, without any erection of the penis, but with a propensity to venery, flows from the urethra while the person is awake.
- 5. Gonorrhœa (*dormientium*), in which the seminal liquor is thrown out, with erection and desire of venery, in those who are asleep and have lascivious dreams.

ORDER V. Epischemes. Suppressions of evacuations.

Genus CXXII. Obstipatio. The stools either suppressed, or slower than usual. The species are,

1. Obstipatio (*debilium*), in lax, weak, and for the most part dyspeptic persons.
2. Obstipatio (*rigidorum*), in people whose fibres are rigid, and frequently of an hypochondriac disposition.
3. Obstipatio (*obstructorum*), with symptoms of the colica, 1st, 2d, 4th, and 7th, above mentioned.

Genus CXXIII. Ischuria. An absolute suppression of urine. The species are,

1. Ischuria (*renalis*), coming after a disease of the kidneys, with pain, or troublesome sense of weight in the region of the kidneys, and without any swelling of the hypogastrium, or desire of making water.
2. Ischuria (*ureterica*), coming after a disease of the kidneys, with a sense of pain or uneasiness in some part of the ureter, and without any tumor of the hypogastrium, or desire of making water.
3. Ischuria (*vesicalis*), with a swelling of the hypogastrium, pain of the neck of the bladder, and a frequent stimulus to make water.
4. Ischuria (*urethralis*), with a swelling of the hypogastrium, frequent stimulus to make water, and pain in some part of the urethra.

All these species are subdivided into many varieties, according to their different causes.

Genus CXXIV. Dysuria. A painful, and somehow impeded emission of urine. The species are,

1. Dysuria (*ardens*), with heat of water, without any manifest disorder of the bladder.
2. Dysuria (*spasmodica*), from a spasm communicated from the other parts of the bladder.
3. Dysuria (*compressionis*), from the neighbouring parts pressing upon the bladder.
4. Dysuria (*phlogistica*), from an inflammation of the neighbouring parts.
5. Dysuria (*irritata*), with signs of a stone in the bladder.
6. Dysuria (*mucosa*), with a copious excretion of mucus.

Genus CXXV. Dyspermatismus. A slow, impeded, and insufficient emission of semen in the venereal act. The species are,

1. Dyspermatismus (*urethralis*), from diseases of the urethra.
2. Dyspermatismus (*nodosus*), from knots on the cavernous bodies.
3. Dyspermatismus (*præputialis*), from too narrow an orifice of the prepuce.
4. Dyspermatismus (*mucosus*), from mucus infarcting the urethra.
5. Dyspermatismus (*hypertonicus*), from too strong an erection of the penis.

6. Dyspermatismus (*epilepticus*), from a spasmodic epilepsy happening during the time of coition,
7. Dyspermatismus (*apraetodes*), from an imbecility of the parts of generation.
8. Dyspermatismus (*refluus*), in which there is no emission of semen, because it returns from the urethra into the bladder.

Genus CXXVI. Amenorrhœa. The menses either flowing more sparingly than usual, or not at all, at their usual time, without pregnancy. The species are,

1. Amenorrhœa (*emanationis*), in those arrived at puberty, in whom, after the usual time, the menses have not yet made their appearance, and many different morbid affections have taken place.
2. Amenorrhœa (*suppressionis*), in adults, in whom the menses which had already begun to flow are suppressed.
3. Amenorrhœa (*difficilis*), in which the menses flow sparingly, and with difficulty,

ORDER VI. Tumores. An increased magnitude of any part without phlogosis.

Genus CXXVII. Aneurisma. A soft tumor, with pulsation, above an artery.

Genus CXXVIII. Varix. A soft tumor, without pulsation, above a vein.

Genus CXXIX. Ecchymoma. A diffused, and scarce eminent, livid tumor.

Genus CXXX. Scirrhus. An hard tumor of some part, generally of a gland, without pain, and difficultly brought to suppuration.

Genus CXXXI. Cancer. A painful tumor of a scirrhus nature, and degenerating into an ill-conditioned ulcer.

Genus CXXXII. Bubo. A suppurating tumor of a conglobate gland.

Genus CXXXIII. Sarcoma. A soft swelling without pain.

Genus CXXXIV. Verruca. A harder scabrous swelling.

Genus CXXXV. Calvus. A hard, lamellated thickness of the skin.

Genus CXXXVI. Lupia. A moveable, soft tumor below the skin, without pain.

Genus CXXXVII. Ganglion. An harder moveable swelling, adhering to a tendon.

Genus CXXXVIII. Hydatis. A cuticular vesicle filled with aqueous humour.

Genus CXXXIX. Hydarthrus. A most painful swelling of the

joints, chiefly of the knee, at first scarce elevated, of the same colour with the skin, diminishing the mobility.

Genus CXL. Exostosis. A hard tumor adhering to a bone.

ORDER VII. Ectopiæ. Tumors occasioned by the removal of some part out of its proper situation.

Genus CXLI. Hernia. An ectopia of a soft part as yet covered with the skin and other integuments.

Genus CXLII. Prolapsus. A bare ectopia of some soft part.

Genus CXLIII. Luxatio. The removal of a bone from its place in the joints.

ORDER VIII. Dialyses. A solution of continuity; manifest to the sight or touch.

Genus CXLIV. Vulnus. A recent and bloody solution of the unity of some soft part by the motion of some hard body.

Genus CXLV. Ulcus. A purulent or ichorous solution of a soft part.

Genus CXLVI. Herpes. A great number of phlyctenæ or small ulcers, gathering in clusters, creeping, and obstinate.

Genus CXLVII. Tinea. Small ulcers among the roots of the hair of the head, pouring out a humour which changes to a white friable scurf.

Genus CXLVIII. Psoa. Itchy pustules and little ulcers of an infectious nature, chiefly infesting the hands.

Genus CXLIX. Fractura. Bones broken into large fragments.

Genus CL. Caries. An exulceration of a bone.

Having thus presented to our readers a general systematic view of all the diseases to which the human body is liable, we come next to give a particular account of the more important affections and their treatment; and in the execution of this part of our task, we hope to render the intelligent practitioner no inconsiderable service by introducing, in their proper places, the valuable FORMULÆ which are in use in the different PUBLIC HOSPITALS in LONDON, as well as some adopted in the private practice of the most eminent physicians.

It may be necessary farther to observe, that the several remedies directed in the cases of which we treat, are to be understood as referring to the new PHARMACOPŒIA of the LONDON COLLEGE.

THERAPEUTICS ;

OR,

THE PRACTICE OF MEDICINE.

IT has already being observed, that SAUVAGES was the first who attempted to arrange diseases according to the plan suggested by Sydenham ; and his work still continues the only one that merits the title of *Methodical Nosology*. For though Linnæus, Vogel, Cullen, and Sagar, have successively endeavoured to improve his method of classification, they have contented themselves with an enumeration and arrangement of the different genera, without entering into their history and cure : so that, though we have since had various *Schemes of Arrangement*, we have had, properly speaking, no complete *System of Nosology* ; that is, no complete COURSE OF MEDICINE according to any of these arrangements. Presuming, therefore, that a practice formed upon the most approved classification, in imitation of the work of Sauvages, might be esteemed an acquisition by medical men, we have endeavoured to execute that task in the present part of this treatise ; wherein the practice is modelled on the arrangement of Dr. Cullen ; and the outline filled up from the best authors, so as to exhibit the most approved methods of treatment, with the latest discoveries and improvements in the healing art.

Our first task will be to speak of FEBRILE DISEASES ; and in doing this we shall not depart from our original design of taking Dr. CULLEN for our guide. Nevertheless we are induced, in addition to what has been said under the head of Theory of Medicine, to preface this portion of our undertaking with Dr. Baeta's Comparative View of the Theories and Practice of Drs. Cullen, Brown, and Darwin, in the Treatment of Fever and of Acute Rheumatism ; observing, that he occasionally alludes to Dr. CULLEN's Spasmodic Theory of Fever, which we have already fully detailed.

Dr. Brown's Theory of Fever is thus concisely stated by Dr. Baeta.

“ Dr. Brown supposes the proximate cause of fever to consist in debility (Elem. of M. par. 679.); which may be either direct or indirect, according to the nature of the noxious powers which were previously applied to the system. (Elem. of M. par. 681.) Hence he makes two divisions of fevers;—1st, Those which depend on direct debility: in this he ranks some intermittent fevers, the typhus mitior and gravior, the plague, &c. (Elem. of M. par. 685, 6.)—2d, Those which depend on indirect debility: under which division he ranks some intermittents, and some continued fevers, occasioned by drunkenness, the confluent small-pox, &c. (Elem. of M. par. 687.) Hence he forms two indications in the cure of fevers, just according to those divisions for removing direct and indirect debility. (Elem. of M. par. 103—110.), viz. In fevers dependent on direct debility, he recommends diffusible stimuli in small doses, and often repeated (par. 686); in those dependent on indirect debility, he orders the largest doses of stimuli (par. 687.)

Before he enters into the consideration of Dr. Darwin's doctrine of fever, the author lays down the following principles deduced from the Zoonomia.

“ 1st. There is in every part of the animal system a living principle, which is termed sensorial power, and which is considered as the immediate cause of all its motions. (Zoon. part i. sect. 4.) This is supposed to be secreted in the brain and spinal marrow. (Zoon. part i. sect. 12, 2, 1.)

“ 2d. This living principle is capable of being acted upon in four different ways, viz. it possesses four different faculties or modes of action, which in their inactive state are called irritability, sensibility, voluntariness, and associability; and in their active state, or while they are exerted, they are termed irritation, sensation, volition, and association. (Zoon. vol. i. sect. 5.)

“ 3d. The faculty of that living principle, which is termed irritability, is exerted in consequence of the stimulus of external bodies acting on any part of the system where sensorial power resides, and it then may produce fibrous motions. That of sensibility is exerted in consequence of the stimulus of pleasure or pain, occasioned by the fibrous motions produced by the sensorial power of irritation at first. That of voluntariness is exerted in consequence of the stimulus of desire or aversion occasioned by the fibrous motions produced by the sensorial power of sensation at first. That of associability is at first exerted in consequence of the stimulus of any fibrous motions, previously occasioned either by irritation, sensation, or volition. (Zoon. vol. i. sect. 4 and 12.)

“ 4th. During the application of any of these stimuli (Prin. 3d), the living principle, or sensorial power, becomes exhausted; on the contrary, during the subduction of any of these stimuli the sensorial power becomes accumulated.

“ 5th. There are various circles of associate motions in the ani-

mal system, which may take their names from the nature of their introductory link: that is, those circles the introductory link of which consists of an irritative motion, may be termed circles of irritative associate motions; those, the introductory link of which consists of a sensitive motion, circles of sensitive associate motions; and lastly, those, the introductory link of which consists of a voluntary motion, circles of voluntary associate motions. (Zoon. vol. ii. Class IV. 1, 1, B.)

" 6th. The links of each of these circles act on one another by means of the sensorial power, which in its inactive state is called sensorial power of associability, and in its active state sensorial power of association. (Zoon. vol. i. sect. 5.)

" 7th. These circles of associate motions may be affected by other sensorial motions, occasioned by the sensorial powers of irritability, sensibility, and voluntariness. (Zoon. vol. ii. Class IV. 1, 1, D.)

" 8th. Each of these great circles of associate motions may be considered as compounded of smaller circles, that is, the great circle of irritative associate motions may be looked on as a collection of smaller circles of the same kind. (Zoon. Suppl. 1st 6.)

" 9th. The introductory link of any circle of associate motions, may have its action increased, or decreased, or in its natural degree. The first may take place either in consequence of excess of sensorial power, the stimuli being in their accustomed degree; or, in consequence of excess of stimuli, the sensorial power being in its natural degree; or in consequence of excess of both. The second may arise either from want of sensorial power, the stimulus being in its usual degree; or from subduction of stimuli, the sensorial power being in its natural quantity; or from want of sensorial power, and subduction of stimuli. The third takes place, when both the sensorial power and the stimuli are in a proper degree.

" 10th. Sometimes the morbid increased, as well as the morbid decreased, actions of the introductory link of a circle of associate motions are followed by similar actions of the other links; at other times by contrary actions: in the first case we have direct, in the second indirect sympathy. (Zoon. vol. i. sect. 35, 1; and vol. ii. Class IV. 1, 1, F.)

" 11th. The morbid decreased actions, which arise from subduction of stimuli, are sooner overcome than those which are occasioned by want of sensorial power. (Zoon. vol. ii. Sup. 1. 12, 10.)

" 12th. The morbid increased actions, which arise from excess of sensorial power, are more violent than those which are produced by excess of stimuli. Hence inflammatory diseases are commonly preceded by subduction of stimuli, and consequent accumulation of sensorial power, &c. But when excess of sensorial power is acted

upon by excess of stimuli, the exertion which follows is far superior. Hence mortification of frozen limbs, when brought near the fire. (Zoon. vol. ii. Class III. 2. 1. 17.)

“ 13th. Those parts which are subjected, during health, to perpetual action, as the heart and arteries, accumulate sensorial power faster, when their motions are impeded, than those which are subjected to intermitted action. (Zoon. vol. ii. Suppl. 1. 3. 1.)

“ 14th. When stimuli, which are usually applied to a certain part of the system, are subducted from it, an accumulation of sensorial power takes place there, proportioned to the subduction of those stimuli, and to the state of that part.

“ 15th. The exertion of any part of the system may be either proper, or greater, or smaller than it ought to be; and so either health, or inflammation, and the various degrees of exhaustion of sensorial power, or torpor from accumulation of sensorial power, will ensue.

“ 16th. Fever consists of one or more disordered trains or tribes of associated motions. (Zoon. vol. ii. Class II. 1. 2.) Hence fever will be more or less complicated, according to the number of the tribes disordered.

“ After these principles, Dr. Darwin's doctrine of fever may be considered as follows: When the torpor of any part of the system, owing to deficient irritation, occasioned either by the subduction of the natural stimuli, and consequent accumulation of sensorial power, or by the application of powerful stimuli, and consequent exhaustion of the same living principle (Prin. 4th, 7th, and 14th), is such as to occasion decreased actions of that part, what happens? The next link of the tribe of associate motions falls also into a torpor, from defect of excitement of the sensorial power of association, and so the subsequent one, till a general torpor affects the system. This constitutes the cold paroxysm of fever. This general torpor remains, till the accumulation of the sensorial power of association has been formed, which may overbalance that defect of excitement of association, and then the torpor ceases, and the hot fit of fever is produced.

“ When the torpor of the part first affected is occasioned by the subduction of the natural stimuli, this part is likewise thrown into increased actions during the hot fit. But if it arise from exhaustion of sensorial power, this part remains in a torpid state during the hot fit. (Prin. 11.)

“ The torpor induced by the subduction of the natural stimuli, as it is overcome at the end of the cold fit (§ XVIII.), always gives rise to fevers with strong pulse; since in this case all the parts of the system have their actions increased during the hot fit. (Prin. 12.)

“ The torpor induced by the exhaustion of sensorial power produces various effects, according to the part in which it takes

place. When it takes place in the stomach, it is always a cause of continued fever with weak pulse. (*Zoonomia*, vol. ii. Suppl. 1. 16. 9.) In this case, in consequence of the torpid state of the stomach, the arterial system falls likewise into a torpor, from defect of the excitement of the sensorial power of association (Princ. 6 and 10.); therefore an accumulation of this sensorial power of association takes place in the arterial system: but this accumulation is so great, owing to the perpetual actions of the stomach catenated with those of the arterial system (Princ. 13.), that it affects the next link of the associate train, that is, the capillaries, with increased energy (Princ. 10.) Hence these last, in this kind of fever, are perpetually exerted with great increase of action.

“ When this torpor affects the cecerning vessels of the brain, Dr. Darwin thinks, that it is a cause of fever with arterial debility. (*Zoonomia*, vol. ii. Suppl. 1. 10.) In this case, the secretion of sensorial power being more or less impaired, must occasion languid actions of every part of the system (Princ. 1.) In fevers, with arterial debility, arising from this cause, the actions of the capillaries are diminished along with the actions of the rest of the system. Hence the heat of the body is never above the natural standard, and sometimes it is even lower throughout the course of the disease; which phenomenon we have observed sometimes in patients labouring under continued fever with arterial debility.

“ Though Dr. Darwin does not mention the torpor from exhaustion of sensorial power in the arterial system, as a cause of continued fever with arterial debility, yet, considering that the stimulus of the blood may be more or less increased, in consequence of a greater or smaller quantity of oxygen, we make the following query: May not the sensorial power of irritation be accumulated for a while in the arterial system, by the subduction of the stimulus oxygen? And afterwards by a sudden application of this stimulus in a great degree, that is, by inspiring at once a large quantity of pure oxygen gas, may not a violent exertion take place there, so as to produce an exhaustion of the sensorial power of irritation, and to render the arterial system unfit to derive from the brain and spinal marrow a proper quantity of sensorial power (See note (1) Princip. 11.), which may therefore give rise to a fever with arterial debility?

“ When the torpor from exhaustion of sensorial power affects other parts of the system, which have their actions associated with those of the stomach, as, for instance, the spleen, liver, &c. the stomach falls into a torpor, from defect of excitement of the sensorial power of association, and so the arterial system, till a general torpor is formed, which constitutes the cold fit (Sect. xvii.) Now, during the cold fit an accumulation of sensorial power of association takes place in the stomach, arterial system, &c. which overbalances this defect of excitement of the sensorial power of

association: consequently, these parts are thrown into increased actions. This constitutes the hot fit, which according to the accumulation of the sensorial power of association, and to the stimuli applied to it, will produce various effects. (Princip. 4. and note (n) Princip. 15.) Thus either these increased actions may be proper, to reduce the sensorial power of association, accumulated during the cold fit, to its just limits, and at the same time to affect, by means of associate motions (Princip. 5. and 8.), that part which is torpid from exhaustion of sensorial power, so as to restore its just degree of deriving sensorial power from the brain and spinal marrow; and then the fever is cured: or these increased actions merely reduce the sensorial power of association to its natural standard, while the spleen, liver, &c. remain yet in a torpid state, which, either by its degree, or by the concurrence of other causes, may induce again the torpor of the stomach, &c. in consequence of defect of excitement of the sensorial power of association. Hence various kinds of intermittent fevers, or these increased actions, may be in such a degree, as to occasion sensation. Hence inflammatory fevers (Princip. 15.) Or lastly, these increased actions may, in consequence of their violence, produce a smaller, or greater, or complete exhaustion of sensorial power, in some part essential to life. Hence various kinds of continued fever with arterial debility (Sect. xx. xxi. and xxi.) or even death (Princip. 15.)

“From Sect. xvi.—xxiii. it will appear, that Dr. Darwin’s Doctrine of Fever explains the various phenomena which take place in this disease: viz. it accounts, 1st, For the formation of the cold fit, and decreased actions of the system, which are observable in it (Sect. xvii.): 2dly, For the formation of the hot fit, &c. (Sect. xvii.): 3dly, For the phenomena which attend the hot fit of fevers with arterial strength (Sect. xix. and xxiii.): 4thly, For the intermission of fevers (Sect. xxiii.): 5thly, For the change from intermittent to continued fevers (Sect. xxii.): 6thly, For the phenomena which take place in some continued fevers with arterial debility; that is, the decreased actions of the stomach and arterial system, as evinced by the want of appetite and weak pulse; and for the increased actions of the capillaries, as evinced by the increased heat (Sect. xx.): 7thly, For the absence of the increased actions of the capillaries, in some fevers with arterial debility, as evinced by the absence of increased heat over the body (Sect. xxi.): Lastly, For the long duration of continued fever with arterial debility (Sect. xxviii.)

“From the same doctrine of fever the most proper indications of cure are deduced.—1st, According to it, we must excite the system in the cold fit of fevers, taking care, however, to proportion the stimuli to the sensorial power already accumulated. By these means we prevent the accumulation of sensorial power,

which may give rise either to the hot fit (Sect. xvii.), or to inflammation, &c. (Sect. xxiii.) Hence Dr. Darwin's expression (Zoonomia, vol. i. Sect. 12.), 'The true means of curing fever (with strong pulse) must be such as decrease the action of the system in the hot fit, and increase it in the cold fit.'

" 2dly, According to the same doctrine, during the hot fit of fevers with arterial strength, we are led to diminish the increased action of the system: since by this means we prevent the inflammation, which may arise during the hot fit in consequence of these increased actions, and various other disorders (Sect. xxiii.) Hence Dr. Darwin says (Zoonomia, vol. ii. Supl. 1. 16. 9.), 'The cure of fever with strong pulse (in the hot fit) consists in the repeated use of venesection, gentle cathartics, diluents, &c.'

" 3dly, According to the same theory, it appears, that the cure of fevers with arterial debility and increased actions of the capillaries (Sect. xx.) consists in restoring the energy of the stomach and arterial system, and in decreasing the morbid increased actions of the capillaries. The first of these is obtained, by exciting into action the torpid stomach (and consequently the arterial system) either directly, as by wine, opium, bark, &c. and food in small repeated quantities; by slight electric shocks passed through it; by fomentations with water, heated to 96 or 100 degrees of Fahrenheit's thermometer; by exciting its power of association with other parts of the system, as by a blister, or indirectly, as by the exhibition of emetics, or iced water, &c. Hence the remarkably good effects of wine, bark, emetics, &c. in cases of fever, related by the author, chiefly in that of R. Feeniston, under Dr. Hope's care. The second of these indications is obtained by free admission of cold air, and chiefly by the ablution with, or affusion of cold water over the surface. Hence the manifest utility of the affusion with cold water, ordered by Dr. Gregory in the cases alluded to, and likewise of the affusion of cold water, so much recommended by Dr. Currie. When these two means, viz. the invigorating the actions of the stomach, &c. by small repeated doses of stimuli, and the weakening the energetic actions of the capillaries of the skin, by ablution with or affusion of cold water, are used conjointly, they are found to be of the greatest utility in the cure of fevers of this kind.

" Lastly, from Dr. Darwin's doctrine, it appears, that in fevers, with arterial debility and decreased actions of the capillaries (Sect. xxi.), the cure consists in restoring the energy of the system, but particularly of the secreting vessels of the brain. Hence all those substances which may have the power of exciting these vessels, will be useful in this kind of fevers. Opium and wine are supposed by Dr. Darwin to possess this power (Zoonomia, vol. ii. Supl. 1. 16. 9). In this kind of fever Dr. Darwin recommends also hot fomentations to the head, small electric shocks passed through it, and

small blisters. Might not the warm bath be used with utility in these fevers? The respiration of oxygen gas, diluted with atmospheric air (says Dr. Darwin), would be useful in such fevers. (*Zoonomia*, vol. ii. Supl. 1. 11. 7.) Might not this remedy, when well managed, be found useful in those fevers which may arise from the exhaustion of the sensorial power of irritation in the arterial system? (See Sect. xxii.) The utility of inspiring oxygen gas, diluted with atmospheric air, in fevers with arterial debility, is related by Dr. Thornton. (See Dr. Beddoes's *Considerations on the medical Powers of facitious Airs*, part iv. and v. p. 135.)

“From the explanation given, Sect. ii.—vii. it is, I think, evident;—1st, That by means of Dr. Cullen's doctrine of fever we cannot account for the phenomena which take place in this disease. —2dly, That from this doctrine we cannot draw any proper indication of cure in it. Likewise from what is contained in Sect ix.—xv. it will appear,---1st, That Dr. Brown's Theory of Fever does not account either for certain phenomena which are observable in the hot fit of intermittent fevers, or for the increased heat over the body in some continued fevers with arterial debility.---2dly, That from this doctrine we cannot draw what may be called a complete indication of cure in fevers. For it always rejects a remedy which is sometimes useful; and uniformly recommends one, which is, at times, or generally, noxious in the hot fit of intermittent fevers:---And, lastly, it always rejects one of the most useful remedies in the cure of some continued fevers with arterial debility; and also of intermittent fevers, when used during the hot fit, when the heat of the body is above the natural standard, &c. But from the account given Sect. xvi.---xxiii. as mentioned Sect. xxiv.---xxviii. it is manifest that Dr. Darwin's Theory of Fever---1st, Accounts for the various phenomena observable in this disease.---2dly, Affords the most proper indications of cure in it; and at the same time explains the operation of the remedies, by which these indications are fulfilled.

CLASS I. PYREXIÆ (the Febrile Diseases of other Authors).

ORDER I. FEBRES.

Sauv. Class II. *Vog.* Class I. *Sagar*, Class XII. *Morbi Febriles Critici*, *Lin.* Class II.

SECT. I. INTERMITTENTS.

Intermittentes of some authors; *Sauv.* Class II. Order III. *Lin.* Class II. Order II. *Vog.* Class I. Order I. *Sag.* Class XII. Order III.

The *remittentes* of others, *Sauv.* Class II. Order II. *Sag.* Class XII. Order II.

Exacerbantes, *Lin.* Class II. Order III.

Continuæ, *Vog.* Class I. Order II.

GENUS I. TERTIANA; the TERTIAN FEVER.

(*Tertiana*, *Sauv.* G. 88 *Lin.* 16. *Hoffm.* *Stahl.* *Cleghorn.* *Senac.*)

I. The *Genuine* TERTIAN.

(*Tertiana legitima*, *Senert.* *Hoffm.* *Cleghorn*, *Minorc.* *Sauv.* Sp. I.)

1. *Description.*] This disease comes on in the morning, or from breakfast to dinner-time. It begins with a remarkable shivering, increasing frequently to a kind of convulsive shaking of the limbs. The extremities are always cold, sometimes remarkably so. The cold for the most part is first perceived about the lumbar regions, and from thence ascending along the spine turns towards the pit of the stomach. Sometimes it begins in the first joint of the fingers and tip of the nose. Sometimes attacks only a particular part of the body, as one of the arms, the side of the head, &c. This cold is preceded by a heavy and sleepy torpor, languor, and lassitude, which we are partly to ascribe to real weakness, and partly to mere laziness. To these symptoms succeed yawning and stretching; after which the cold comes on as above described, not unfrequently with a pain of the back and a troublesome sensation of tension in the præcordia and hypochondria. To this succeed nausea and vomiting; and the more genuine the disease, the more certainly does the vomiting come on, by which a great deal of tough mucous matter, and sometimes bilious stuff or indigested food, is evacuated during the first paroxysms. In some there is only a violent straining to vomit, without bringing up any thing: sometimes, instead of these symptoms, a diarrhoea occurs; and this chiefly in weak, phlegmatic, and aged people, or where an indigested mucous saburra has long remained in the primæ viæ.

When these symptoms have continued for an hour or two, the cold begins to go off, and is succeeded by a lassitude, languor, and flaccidity of the whole body, but chiefly in the limbs, with an uneasy soreness as if the parts had been bruised; excepting in those cases where the nausea continues for a longer time. After this languor a heat comes on, the increase of which is generally slow, but sometimes otherwise, with pain of the head, thirst, and bitterness in the mouth. The pulse is quick and unequal; sometimes beating 130 strokes in a minute. As soon as this heat hath abated, a little moisture or sweat is observed to break forth; not always indeed in the first, but always in the succeeding paroxysms.

and the urine lets fall a quantity of lateritious sediment. The whole paroxysm is scarce ever over in less than six hours; more frequently eight, and in violent cases extends to twelve hours; but that which exceeds twelve hours is to be reckoned a spurious kind, and approaching to the nature of continued fever. All these symptoms, however, are repeated every third day, in such a manner that the patient is quite free from fever for at least twenty-four hours. The paroxysms return much about the same time, though sometimes a little sooner or later.

2. *Causes of this disease and persons subject to it.*] The genuine tertian attacks men rather than women, young people rather than old; the latter being more subject to anomalous tertians. It likewise seizes the lusty and active, rather than the lazy and indolent. Those, however, who are apt to nauseate their meat, fall easily into a tertian fever. The cause, according to Dr. Cullen, is the miasma of marshes, and that only. Other physicians have taken in many more causes, almost every thing indeed which debilitates the body: but the doctor denies that any of these, though they may dispose the body for receiving the disease, or may augment it, can by any means produce it without the concurrence of the marsh miasma; and it cannot be denied, that it is a disease almost peculiar to marshy situations. Thus we find it very frequent in the fenny countries of Britain, although in other parts of this island it may be considered as a rare disease.

3. *Prognosis.*] The genuine simple tertian, unless improper medicines be administered, is generally very easily cured; nay, the vulgar reckon it of such a salutary nature, that after it they imagine a person becomes more strong and healthy than before. Hippocrates has observed, that these fevers terminate of their own accord after seven or nine paroxysms.—Juncker tells us, that it frequently terminates before the seventh paroxysm, but rarely before the fourth. He also denies that any thing critical is to be observed in its going off; but in this he differs from Vogel, who tells us, that the urine, for some days after the fever is quite gone off, appears slimy, and lets fall much sediment. The latter also asserts, that besides the common crisis by sweat and urine, the tertian hath one peculiar to itself, namely, dry scabby ulcers breaking out upon the lips. These sometimes appear about the third or fourth paroxysm; and then we may venture to foretell that the disease will go off spontaneously after the seventh. But though the disease be never dangerous, in cold climates at least, when properly treated; yet the improper use of hot and stimulating medicines may change it into a continued fever, more or less dangerous according to the quantity of medicines taken and the constitution of the patient; in which case the progress must be regulated by the particular symptoms which occur. In warm climates, however, the tertian fever may be considered as a much

more dangerous disease; and unless the most powerful remedies be employed, the patient is in danger of falling a victim to every paroxysm.

A variety of theories have been proposed for explaining the phenomena of this affection; but every thing said upon the subject is highly unsatisfactory. For although it be now almost universally admitted, that this fever does arise from the effluvia of marishes, yet in what manner the action of those effluvia induces fever, and particularly why this fever returns in regular paroxysms, are questions with regard to which we are still totally in the dark. Dr. Cullen, with much ingenuity, attempted to prove, that the remote causes of this, as well as of other fevers, operated by inducing a state of debility; that this debility giving rise to spasm, induces increased action, from which the phenomena are to be explained. But this theory is liable to no less numerous and insurmountable objections than the exploded hypotheses which had before been proposed by others. For it is an undeniable truth, that debility often exists, even to the highest imaginable degree, without any fever; nay, that when fever has taken place, the debility is often much greater after it is entirely gone than at any period during its course. When spasm and increased action do take place, we have no reason to view them in any other light than merely as symptoms of the disease; and while they are often absent in this affection, they frequently occur in others where the sickness, anxiety, and other characterising symptoms of fever are entirely absent: and, upon the whole, a probable or rational theory of intermittents, as well as other fevers, still remains to be discovered.

4. *Cure.*] The treatment of all genuine intermittents, whether *tertians*, *quotidians*, or *quartans*, being almost precisely the same, the general method of cure applicable to them all may be here given, to which it will be easy to refer when we come to describe the others.

In treating intermittent fevers, physicians have formed indications of cure according to their different theories. The followers of Boerhaave, Stahl, &c. who imagined that the disease proceeded from a lentor or other disorder in the blood, always thought it necessary to correct and evacuate these peccant humours by emetics and purgatives before they attempted to stop the disease by the Peruvian bark or any other medicine. The bark, indeed, among some of them, seems to be held in very little estimation; since Vogel affirms, that this medicine, instead of deserving to have the preference of all other febrifuge medicines, ought rather to be ranked among the lowest of the whole; and for this reason he ascribes the cures, said to be obtained by the use of the Peruvian bark, entirely to nature.

According to Dr. Cullen, the indications of cure in intermitting fevers may be reduced to the following.

1. In the time of intermission, to prevent the return of the paroxysms.

2. In the time of paroxysms, to conduct those in such a manner, as to obtain a final solution of the disease.

3. To take off certain circumstances which might prevent the fulfilling of the two first indications.

The first indication may be answered in two ways: 1. By increasing the action of the heart and arteries some time before the period of accession, and supporting that increased action till the period of accession be over, and thus to prevent the recurrence of that atony and spasm of the extreme vessels, which he thinks give occasion to the recurrence of paroxysms. 2. By supporting the tone of the vessels, and thereby preventing atony and the consequent spasm, without increasing the action of the heart and arteries, the recurrence of paroxysms may be prevented.

The action of the heart and arteries may be increased, 1. By various stimulant remedies internally given or externally applied, and that without exciting sweat. 2. By the same remedies, or others, managed in such a manner as to excite sweating, and to support that sweating till the period of accession be for some time past. 3. By emetics, supporting for the same time the tone and action of the extreme vessels.

The tone of the extreme vessels may be supported without increasing the action of the heart and arteries, by various tonic medicines; as, 1. Astringents alone. 2. Bitters alone. 3. Astringents and bitters conjoined. 4. Astringents and aromatics conjoined. 5. Certain metallic tonics; and, 6. Opiates. A good deal of exercise, and as full a diet as the condition of the patient's appetite and digestion allow of, will be proper during the time of intermission, and may be considered as belonging to this head. Although many particulars in this plan of cure are deduced from Dr. Cullen's theory, yet there can be no doubt that the object chiefly to be aimed at is to employ such remedies during the intermissions as will prevent a recurrence of the paroxysm. Of all the remedies hitherto employed with this intention, the most celebrated, perhaps the most certainly effectual, is the Peruvian bark; or to speak more properly, the bark of the *Cinchona officinalis* of Linnæus. But it must be observed, that good effects are only to be expected from this medicine when given in substance and in large quantity; and for its use the following instructions have been given.

1. The bark may with safety be employed at any period of intermitting fevers, provided that at the same time there be neither a phlogistic diathesis prevailing in the system, nor any considerable or fixed congestion present in the abdominal viscera.

2. The proper time for exhibiting the bark in intermittent fevers is during the time of intermission, and it is to be abstained from in the time of paroxysms.

3. In the case of genuine intermittents, while a due quantity of bark is employed, the exhibition of it ought to be brought as near to the time of accession as the condition of the patient's stomach will allow.

4. In all cases of intermittents, it is not sufficient that the recurrence of paroxysms be stopped for once by the use of the bark; a relapse is commonly to be expected, and it should be prevented by the exhibition of the bark repeated at proper intervals.

The advantage of administering the bark as early as possible, was fully ascertained by Dr. Lind in the years 1765, 66, and 67, during an uncommon prevalence of intermittents. When the disease was stopped by the bark immediately after the first or second fit, which was the case with 200 of the Doctor's patients as well as himself, neither a jaundice nor dropsy ensued; whereas, when the bark could not be administered, on account of the imperfect remission of the fever, or when the patient had neglected to take it, either a dropsy, jaundice, or constant headach, were the certain consequences; and the violence of the disease was in proportion to the number of the preceding fits, or to the continuance of the fever. By every paroxysm the dropical swellings were visibly increased, and the colour of the skin rendered of a deeper yellow. When the fever continued a few days without remission, the belly and legs generally swelled; a violent headach, likewise, and vertigo, for the most part distressed the patient; so that some, even after the fever had left them, were not able to walk across their chamber for a fortnight or three weeks. When the returns of the fever were regular and even, but slight, four or five fits of a simple tertian were sometimes followed by the most dangerous symptoms; especially in the year 1765, when the fevers raged with great violence. If, as frequently happened, a dropical patient relapsed into the ague, there was an absolute necessity of putting an immediate stop to it by the bark; and in upwards of 70 such patients, Dr. Lind observed the most beneficial effects to accrue from this practice. He never prescribed the bark until the patient was free from all symptoms of the fever; but in that case, without regard to a cough, or any other chronical indisposition, he ordered it to be given in large doses.

The bark has been observed to fail in removing intermittents, from not continuing the use of it for a sufficient length of time, from administering it in too small a dose, or from giving it in an improper form. It is a prevailing opinion, that an ounce, or an ounce and a half, of the bark, taken during one intermission, is sufficient to prevent the return of another paroxysm. But this is not always the case; for a severe fit will often attack a patient

who has taken such a quantity. When this happens, the patient ought to persevere during the following intermissions, with an increase of the dose, till five or six ounces at least have been taken. The medicine also ought not to be omitted as soon as one fit is stopped, but should be continued in a smaller dose, and after longer intervals for at least ten days or a fortnight. Even for several months after the disease is entirely removed, it would be advisable to take a little bark occasionally in damp weather, or during an easterly wind, to prevent a relapse. Where the intervals between the fits are short, as in quotidians and double tertians, from one to two drachms of it ought to be taken every two or three hours.

The form in which this medicine is administered is of some consequence. Mucilages and syrups have been recommended to conceal the taste of it; but, from various experiments, Dr. Lind found nothing more effectual for this purpose than small beer or milk, especially the latter. A drachm of bark mixed with two ounces of milk, and quickly drank, may easily be taken by a person of the most delicate taste, and by washing the mouth afterwards with milk there will not remain the least flavour of the bark; but if the mixture be not drank immediately, the bark will impart a bitter taste to the milk. This medicine is commonly given in electuaries or boluses; but Dr. Lind observes, that in these forms it proves much less efficacious than when administered in juleps or draughts, with the plentiful addition of wine or spirits. He has remarked, that six drachms of powdered bark, given in a julep, consisting of one fourth or one third of brandy, is as effectual as an ounce of the powder in the form of electuary, and proves less disagreeable to the stomach. For patients unaccustomed to wine or spirits, each draught should be warmed with spiritus ammoniæ comp. or tinct. myrrh. by both of which the efficacy of the bark is increased. Dr. Lind is also fully convinced that wine or spirits improve the virtues of the bark much more than vitriolic acid, tinct. rosæ, or such other medicines as have been recommended by different physicians.

For those who nauseate the bark from a weakness of the stomach or other causes, he advises it to be given in clysters, in which form it is as efficacious as when taken by the mouth. For this purpose the extract is most proper, with the addition of a sufficient quantity of the tinctura opii in order to its being longer retained. For children labouring under intermitting fevers, Dr. Lind orders the spine of the back to be anointed, at the approach of the fit, with a liniment composed of equal parts of tinctura opii and linimentum sapon. which has often prevented it. If this should not produce the desired effect, he informs us, that two or three teaspoonfuls of *syrup. e mecon.* given in the hot fit, will generally mitigate the symptoms. But for the entire removal of the disease, after purging with magnesia, he prescribes a drachm of the *extract.*

cinchonæ, with a few drops of *tinctura opii* in a clyster, to be repeated every three hours for a child of about a year old. When the stomach is oppressed with phlegm, the *magnesia* frequently occasions vomiting, which should be promoted with warm water. The constant heaviness of the head occasioned by those fevers in such tender constitutions is best relieved by the application of a blister to the back.

The bark has also proved effectual for the cure of intermittents in children, even when externally applied, by putting the powder of it into a quilted waistcoat. Of its efficacy in this way several instances are related by Dr. Samuel Pye, in the second volume of *Medical Observations and Inquiries*. In short, so effectual was the bark found in removing these fevers when properly applied, that of between four and five hundred afflicted with them in the year 1765, Dr. Lind lost only two, neither of whom had taken this medicine.

In all these fevers, a vomit was administered whenever the patient complained of a sickness and reaching to vomit, or was seized with a spontaneous vomiting; and the bark was never given till the sickness was removed, or a purgative taken to clear more perfectly the whole alimentary canal. Dr. Fordyce directs the following emetics:

(No. 1.) ℞ Pulv. Ipecac. gr. vi. ad xij.
 Antim. Tart. gr. i. Ft. Pul. Emet.
 Vel, Ft. cum Syr. Scillit. q. f. Bolus. Emet.
 Vel,

(No. 2.) ℞ Tinct. Ipecac. ℥ss. ad ʒj.
 Antim. Tart. gr. j. Ft. Haust. Emet.

As a purgative, the following is not improper.

(No. 3.) ℞ Infus. Sennæ sim. ʒv.
 Kali Tartar. ʒj.
 Antim. Tartar. gr. ij. solve ut fiat Mist. cathart.
 Sumantur coch. iv. tertia quaq. hora donec venter rite solutus fuerit. Vel,

(No. 4.) ℞ Infus. Sen. ʒjss.
 P. Rad. Rhab. ʒj. ad ʒss.
 Syr. Rosæ }
 Træ Sennæ } a a ʒij. m.

Capt. Intermitt. Temp. ita ut Purgatio ex toto cessaverit ante Paroxyfmi Accessionem.

The following warm purgatives are sometimes directed by Dr. Saunders at Guy's Hospital:

(No. 5.) ℞ Pulv. Aloet. cum Guaiac. ʒij.
 Pulv. Antimonial: ʒj.
 Syrupi simp. q. f. Fiant pil. xvi. cap. ij. hora somni.
 (No. 6.) ℞ Vini Aloës ʒiiss.

Sp. Ammon. Comp. ʒss. M. cap. coch. j. ex quovis vehiculo.

(No. 7.) ℞ Kali vitriolat.

Pulv. Rhabarb. sing. gr. xv.

Pulv. Aromat. gr. v. M. f. Pulv. purg. mane sumend.

In those patients who were troubled with a cough, attended with a pain in the side affecting the breathing, when the pain was not relieved by warm fomentations, the balsamum anodynum, or by a blister, Dr. Lind generally ordered a few ounces of blood to be taken away, and endeavoured to stop the fever as soon as possible by the administration of the bark: having found that every return of the fever increased all such pains. When the headach was very violent, and harassed the patient during the intermissions, the success of the bark was rendered more complete by the application of a blister to the back.—A giddiness of the head, which is the symptom most commonly remaining after even a slight intermitting fever, was generally relieved by volatiles, and the bark in wine. The former of these was administered in the following manner:

(No. 8.) ℞ Aq. Menth. Sativ. ʒvii.

Sal. cornu cervi ʒss.

Syr. è Cort. Aurant. ʒi. M. f. julep. Cap. cochlear. ij. subinde.

If from the continuance of the fever the patient was distressed with flatulence, a distension of the abdomen, and a swelling of the legs, a spoonful of tinctura sacra, with the addition of 30 drops of the Tinct. lavend. compos. was ordered to be taken every night.—A continuance of the bark, a change of air, and the cold bath, were often found requisite to prevent a relapse.

Such was the method of cure recommended by this experienced author, who also proved the efficacy and success of opium in intermitting fevers. He informs us, that he has prescribed an opiate to upwards of 300 patients labouring under this disease; and he observed, that, if taken during the intermission, it had not the least effect either in preventing or mitigating the succeeding paroxysm: when given in the cold fit, it once or twice seemed to remove it; but when given half an hour after the commencement of the hot fit, it generally gave immediate relief.

(No. 9.) ℞ Tinct. Opii gutt. xx. ad xl.

Aqua Menthae sativæ ʒiiss M.

Fiat Haust. anod.

When given in the hot fit, the effects of opium are as follow:
1. It shortens and abates the fit; and this with more certainty than an ounce of the bark is found to affect the disease. 2. It generally gives a sensible relief to the head, takes off the burning heat of the fever, and occasions a profuse sweat. This sweat is attended with an agreeable softness of the skin, instead of the

burning sensation which affects patients sweating in the hot fit, and is always much more copious than in those who have not taken opium. 3. It often produces a soft and refreshing sleep to a patient tortured in the agonies of the fever, from which he awakes bathed in sweat, and in a great measure free from all complaints.

The doctor has always observed, that the effects of opium are more uniform and constant in intermitting fevers than in any other disease, and are then more quick and sensible than those of any other medicine. An opiate thus given soon after the commencement of the hot fit, by abating the violence and lessening the duration of the fever, preserves the constitution so entirely uninjured, that, since he used opium in agues, a dropsy or jaundice has seldom attacked any of his patients in those diseases. When opium did not immediately abate the symptoms of the fever, it never increased their violence. On the contrary, most patients reaped some benefit from an opiate given in the hot fit, and many of them bore a larger dose at that time than they could at any other. The doctor assures us that even a delirium in a hot fit is not increased by opium, though opium will not remove it. Hence he thinks it probable, that many symptoms attending the fever are spasmodic; but more especially the head-ach. However, if the patient be delirious in the fit, the administration of the opiate ought to be delayed until he recovers his senses, when it will be found greatly to relieve the weakness and faintness which commonly succeed the delirium. Dr. Lind is of opinion, that opium in this disease is the best preparative for the bark; as it not only produces a complete intermission, in which case alone that remedy can be safely administered; but occasions such a salutary and copious evacuation by sweat, as generally to render a much less quantity of bark requisite. When the patient was costive, he commonly prescribed the opiate thus:

(No. 10.) ℞. Vin. Aloës ʒij

Tinct. opii gutt. xxx. ad l.

Misce. f. Haust.

The bark was ordered immediately after the fit. By these means the paroxysm is shortened, and the intestines are cleansed, previous to the administration of the bark; as the opiate doth not prevent, but only somewhat retards the operation of the purgative. When a vomit is given immediately before the paroxysm, the administration of the opiate should be postponed till the hot fit is begun.

In the administration of Peruvian bark, care should be taken that it be of a good quality. And different opinions have been entertained with respect to the choice, even where there is no reason to believe that it has been adulterated by the mixture of other articles. For a long time, the preference was given to

small quilled pieces of a pale coloured bark: afterwards the *red* bark, which is generally in larger masses, of an apparently coarser texture, and evidently of a more resinous nature, was highly celebrated: and this again has been superseded at Guy's, and most other hospitals in London, by the *yellow* bark, which appears by experiment to possess more of the medicinal quality in a smaller compass, than any other species. Indeed, either of the two last, in cases where they do not disagree with the stomach or excite looseness, are admitted by the most accurate observers to be more powerful in preventing the return of intermittents than the common bark. Whether the red bark be the product of a different species of the cinchona, or be obtained, as well as the pale quilled bark, from the cinchona officinalis, is not yet well ascertained.

A species of cinchona, distinguished by the title of *cinchona Jamaicensis*, has been discovered in Jamaica and other islands in the West Indies. A very accurate description of it has been given by Dr. Wright of Jamaica in the Philosophical Transactions of London. The bark of this species has also been recommended in the cure of intermittents.

The barks of various trees readily cultivated in Britain, particularly different species of the salix, the prunus, the fraxinus, and the quercus, have by some been represented as not less efficacious than the Peruvian bark. But we may safely venture to assert, that although several of them may possess some power in stopping intermittents, yet that none hitherto tried can be considered as in any degree approaching to the cinchona in point of efficacy.

But although the Peruvian bark be the best cure for intermittents hitherto discovered, yet while it can by no means be represented as the only cure, it is very certain that other remedies have in different cases succeeded after the cinchona has failed. Cures have often been obtained by the use of different aromatics, bitters, and astringents. Many articles from the mineral kingdom also have been employed with advantage: and intermittents have unquestionably been in certain cases stopped by different preparations of iron, zinc, copper, lead, and mercury. But of all the articles of this nature, arsenic has of late been the most celebrated. Arsenic is, on good grounds, conjectured to be the basis of an article much employed in the cure of intermittents in some of the countries where they are most prevalent, and sold under the title of the *tasteless ague drop*. The great success attending the use of this article, led Dr. Fowler, an ingenious physician of Stafford, to examine it with particular attention. And in a treatise which he published, entitled, *Medical Reports on the effects of arsenic in the cure of agues*, he has given the following formula for an arsenical solution, which he has found very successful in affections of this kind.

(No. 11.) \mathcal{R} Arsenici pulv. subtil.
 Kali præparati sing. gr. xvi.
 Aquæ distill. \mathfrak{z} iv.

These are to be digested together in a sand heat till the arsenic is completely dissolved.

This solution is given in doses from three to twelve drops, varied according to the condition of the patient, and repeated two or three times a-day. And where the Peruvian bark has failed in stopping intermittents, it seems to be one of the most powerful remedies yet discovered. But after all remedies prove ineffectual, intermittents are often stopped by change of season and of situation.

A *tartarised arsenic*, proposed by Mr. Sherwin, has been found to answer this purpose as well as any other; yet it is necessary, in the exhibition of this dangerous remedy, in every case and under every form, that the physician should continually watch its effects on the system, otherwise the most serious evils may occur to the patient.

But besides the remedies employed in tertian fevers and other intermittents, with the view of preventing the return of paroxysms, it is often also necessary to employ powerful articles with other intentions, particularly to mitigate and shorten the paroxysm when present; to obviate urgent symptoms, especially those of an inflammatory and putrid nature; and to obtain a complete apyrexia or intermission from fever after the paroxysm has ceased. With these intentions, if the symptoms of strength are great, bleeding will be useful, but above all *relaxants* must be employed.

(No. 12.) \mathcal{R} Aq. Ment. vulg. \mathfrak{z} ij \mathfrak{ss} .
 Tart. Vit. \mathfrak{z} ss. ad \mathfrak{z} ij. vel
 Sal. Amm. \mathfrak{z} ij. ad \mathfrak{z} j. vel
 Antim. Tart. gr. $\frac{1}{4}$ ad gr. $\frac{1}{2}$
 Aq. Ment. Piper. } a a \mathfrak{z} ij. m.
 Syr. Moror. }

Cap. quintâ vel sextâ quâque horâ.

The emetics as above will likewise act in the same manner.

It sometimes happens that a perfect intermission being procured by these means, the disease leaves the patient. But if, notwithstanding such intermission, the fever continues, the fit is to be prevented by the following:

(No. 13.) \mathcal{R} Cort. Cinchon Opt. Subt. Pulv. gr. xv. ad \mathfrak{z} ij.
 Capt. e Cyath. Vin. generos. horæ quadrantis ad hor. iv. inter-
 vallo ita ut æger sumat \mathfrak{z} vi. ad minimum inter duos paroxysmos.

As great a quantity is to be given at a time as the patient's stomach will bear; and the intervals between the doses are to be as long as possible.

The bark is to be omitted during the time the subsequent paroxysm should have continued, and is then to be repeated in the same quantity and manner, especially if any symptoms of the fit should have recurred, provided generally that the paroxysm has been greatly lessened. The same measures are to be pursued in the third period: afterward the medicine is to be omitted for four or five days, and then returned to for 24 hours; and this is to be practised twice or thrice (at longer intervals each time).

If there be any symptoms of inflammation in the breast, they should be removed before the exhibition of the bark.

Symptoms of bile in the blood-vessels are not to be attended to any farther than as they render the intermissions imperfect.

If the bark has been given imprudently, viz. when the patient is strong, and no perfect intermission has taken place, we are to omit it till such intermission is procured by the above means; but even then it acts less powerfully than it would otherwise have done. If the bark purges, from five to ten drops of laudanum may be given three or four times a-day. If the patient continues long bound, a stool may be procured by a small dose of rhubarb, or aloes. If the stomach will not bear the powder, the decoction or extract may be used; or it may be applied in a clyster, or even externally, though these methods are never so sure of success.

If the disease attacks a weak patient, or has continued till a strong habit is much weakened, the bark is to be given at the time of the best remission; it often brings on a severe but regular fit, and upon continuing its use the fever leaves the patient.

The following are directed by Dr. Fordyce to counteract the cold fit at the time of its coming on.

(No. 14.) ℞ Spirit. Cinnam. ℥j. ad ℥ij.

Aq. Menth. vulg. ℥j.

Antim. Tart. gr. ℞. ad gr. j℞.

Tinct. Opii gtt. xx. ad xl.

Syr. Croci ℥ij. m. fiat Haust.

(No. 15.) ℞ Aq. Menth. vulg. ℥ij.

Sal. Alk. Volat. m. gr. xv.

Pulv. Ipec. gr. ij.

Træ Opii gtt. l.

Syr. Simpl. ℥j. m. fiat Haust.

Cap. ante paroxysmi accessionem; æger quoque in lecto detineatur.

Having thus minutely described the general treatment of intermittents, we shall speak of the varieties and irregularities which occur, and to which the foregoing remedies are to be adapted according to circumstances.

The *Irregular or Spurious* TERTIAN.

Sp. I. var. 1. B.

Tertiana notha five spuria, *Sauv. sp. 2. Sennert. Clegborn. Hoffman.*

The characteristic marks of this fever are, that its paroxysms last longer than twelve hours, and consequently it inclines more to the quotidian fever than the former. Its paroxysms have no stated hour of attacking. The cure, however, is precisely the same with that above described, observing the proper cautions already mentioned with regard to the use of the bark.

We shall here insert the following singular case of a tertian intermittent, attended with uncommon symptoms, published by Mr. Bradley in the Medical and Physical Journal.

“*Sarah Priest*, a young girl of fourteen years of age, and of an athletic constitution, and who had never menstruated, was seized with the paroxysm of a tertian ague, Jan. 14, 1795. The cold stage continued upwards of an hour, and was succeeded as usual by a hot fit, which lasted rather more than two hours, and then subsided without any evacuation by the skin.

“Jan. 16. The paroxysm returned to-day about the same time, but was somewhat longer in duration.

“17th. To-day, being the first time of seeing her, I found her labouring under considerable fever, pulse quick, tongue white and somewhat parched, some pain in the head and loins, and a disposition to nausea and costiveness; to remove which, fifteen grains of the pulv. ipecac. with one grain of the tartar emetic were given, which puked her several times. After this one drachm of *Fordyce's prophylactic powder* was ordered, which procured four stools. Eight grains of *nitre* with the same quantity of *white sugar*, were next prescribed to be taken every three hours, along with three tablespoonfuls of the *saline mixture*, eight ounces of which contained four scruples of the *kali*, with as much lemon-juice as was sufficient to saturate the same.

“18th. The fit came on four hours earlier than usual, and was similar to the last in point of violence and duration, but yet terminated by no perspiration. In other respects she was the same as before.

“19th. Little alteration since yesterday; the intermediate fever, however, appeared somewhat lessened.

“20th. The paroxysm came on half an hour sooner than the last, and was of equal severity and duration, and yet unsuccessful by any discharge from the skin. As the intermediate and febrile symptoms were now considerably abated, the following was ordered:

(No. 16.) ℞ Pulv. cinchonæ ʒiij.

Kali præp. ʒfs.

Sp. nuc. mosch. ʒfs.

Aq. fontis ʒvij. Misce.

“ Two tablespoonfuls of this mixture were taken every three hours.

“ 21st. Was better to-day than she hitherto had been during the intervals of the fits, being now pretty cool without thirst or pain, and her appetite was considerably better.

“ 22d. This day she had no return of paroxysm, and in all other respects seemed very well. Had discontinued her mixture last night, after having only taken eight ounces of it, and she could not be persuaded to take it afterwards.

“ 24th. At or about the time of the last fit, which was in the night, the patient, according to her own account, was seized with pain in the head, uneasiness and oppression at the stomach, considerable thirst and heat, but without rigors; these, on abating, were succeeded by sleep, and a hæmorrhage, as was supposed from the mouth. Six hours afterwards petechiæ were discovered on the arms, shoulders, and upper part of the trunk, and even on the legs, but the spots on the last were small and innumerable. On looking into the mouth, a number of petechiæ of a gangrenous aspect appeared within the lips, on the inside of the cheeks and fauces. Her pulse was quick, but not weak, and she had some thirst, with listlessness and prostration of strength. Had no sickness or nausea, and was regular as to stools, which exhibited no unnatural appearance. Bled none this day since she awoke in the morning, but her saliva was now and then slightly tinged.”

Mr. Bradley now ordered three large tablespoonfuls of a strong decoction of bark.

(No. 17.) \mathcal{R} Cort. Cinchonæ pulv. \mathfrak{z} vj.

Coque in Aquæ fontis \mathfrak{z} xij. ad \mathfrak{z} vij. adde

Tinct. Cinchonæ comp. \mathfrak{z} j. fiat decoctio.

Along with each dose of this were taken twelve drops of *vitriol. acid. dilut.* Half a pint of red-port wine made into *negus*, and acidulated with lemon-juice, was also ordered to be taken in the course of the day; and a nourishing diet, such as broths, jellies, &c. was also directed.

“ 25th. Bled in the night as before, but without being sensible of any previous indisposition. As the hæmorrhage happened in her sleep, neither its accession, duration, or violence, could be ascertained. In other respects she was as the day before.

“ 26th. Had bled largely as usual from the mouth, in the night, during sleep. Her legs were now swelled, and livid, and the petechiæ were much increased, especially on the face, shoulders, and breast. The spots within the mouth had also a more gangrenous aspect, but the rest of the mouth had an uncommonly pallid appearance. Her pulse was about one hundred, and weak, and her thirst was yet considerable, though her tongue was moist and clean. She was listless, low-spirited, and

free from pain, and was also regular as to stools, which were of a natural consistence, but somewhat more than usually offensive, and dark coloured.

“ The strength of her mixture was increased from six drachms of the bark to one ounce, the same quantity of the decoction to be taken as before, along with fifteen drops of the elixir, instead of twelve. Her wine was also ordered to be increased to a pint a-day.

“ 27th. Much the same as yesterday, and had bled as usual in the night, whilst asleep. Instead of the compound tincture of bark, an ounce of the tincture of *catechu* was added. Milk and rice were now taken along with her former diet.

“ 28th. Bled as usual last night, and complained of great stiffness in her ham and knees, and her legs were much swelled, and more livid and œdematous. The petechiæ were more universal, and her breath offensive. She complained of some sickness, and was greatly dejected. She was delirious the fore-part of the night, but afterwards slept tolerably. Instead of the vitriolic, twelve drops of the muriatic acid were prescribed to be taken in the same manner as the former; and in the intervals of taking her medicine, lemon-juice in different vehicles was plentifully drunk.

“ 29th. This day she went a few yards out of doors, and on her return was seized with rigors, and considerable pain in the back and lower extremities, especially the right leg, which now, in addition to lividness, put on symptoms of inflammation, and was greatly swelled. Two or three large *vibices* appeared in different parts of the body, one of which surrounded the right eye, and occupied the space of the *orbicularis* muscle. Her pulse was increased to one hundred and six, yet her thirst much the same; her petechiæ however bore rather a more favourable aspect, and she bled only about half the usual quantity in the night.

“ 30th. Better in all respects, as the pain in the loins and legs had vanished; and the appearances of the latter, with regard to the colour and swelling, much more favourable. The petechiæ also were changing from a livid to a chocolate colour, and her pulse came down to ninety, and her urine was turbid and similar to new beer mixed with yeast. Had no hæmorrhage last night, and has been without stool for the two last days; but on ordering the *tinct. catechu* to be omitted, she had a motion the same evening. Her appetite now increased, and the same plan was ordered to be pursued.

“ 31st. She continued in all respects to recover. The petechiæ were either daily dispersing or becoming fresher, and the swelling of her legs was considerably reduced. The lividness had nearly disappeared, notwithstanding which she bled a few drops in the night. Her pulse was now at eighty-seven, and as

she complained of being tired of her medicines, the doses were not only lessened to two tablespoonfuls of the mixture, and eight drops of the acid, but ordered to be taken only three or four times a-day. These she could only be persuaded to take two or three days further, but her pint of wine she daily continued taking for a week longer.

“ On the 5th of February, scarcely a vestige of petechiæ was discernible, and she had been free from any further attacks of hæmorrhage, and in all other respects appeared well. She henceforth rapidly regained her former health, which she has continued to enjoy to the present time.

“ This girl, previous to this complaint, had always enjoyed an uninterrupted state of health from her infancy, and had been accustomed to a good deal of bodily exercise, especially within doors. Her diet had usually consisted of milk, and sometimes malt liquor as a substitute, farinaceous, and occasionally animal food, partly fresh and partly salted. Though apparently of a sound constitution, and without any external mark of scrophula, yet her parents were deeply tainted with that disorder.

“ After the first and second attack of hæmorrhage, some proper attendants were appointed to observe the time of accession, and every other circumstance, with regard to any subsequent bleeding that might ensue. The result of these observations was, that the third attack came on at two o'clock in the morning, after the patient had been unremittingly asleep for four hours, and although, previously, she had been somewhat restless, with apparently increased heat and flushing of the face, yet when the bleeding came on she appeared comfortable, still, and laid on her side. After bleeding about five and thirty minutes, *per stitilicidium**, she awoke, and then it ceased. The fourth attack came on half an hour later than the preceding, and was ushered in by less restlessness and apparent heat. After bleeding nearly forty minutes it ceased, and she continued sleeping forwards for an hour, and then awoke and fell asleep a second time, but without having any further return of the hæmorrhage. On the fifth night, she was awake at two o'clock, and kept from falling asleep again till half past three; and then yielding to the power of sleep, ten minutes afterwards the hæmorrhage returned, without any previous indications, and was more profuse than before, but of shorter duration, as it only continued about twenty-eight minutes, though the saliva for several hours afterwards was slightly tinged. With respect to the sixth attack of hæmorrhage, from the carelessness of the attendants no proper account can be given.

* The quantity of blood lost could not be ascertained. It was supposed about an ounce and a half at a time, therefore the bleeding must have been very slow.

“ From a number of collated circumstances, attendant both on the two first and subsequent hæmorrhages, I am of opinion that they return at nearly regular periods; for notwithstanding on the fifth morning, the bleeding was later in its return, yet probably its procrastination was lengthened by keeping her awake beyond the former periods of attack, for, about an hour previous to its accession, it was with some difficulty she was kept from sleeping. This circumstance, joined to the consideration of the hæmorrhage always commencing during sleep, may in some measure account for its procrastination on the fifth morning.

“ The urine throughout her disorder was changeable, both in quantity and appearance. During the first and intermittent stage, it was in large quantity and of a natural colour, especially after the paroxysm, and deposited a small sediment, partly flocculent and partly purulent; but during the intervals, was somewhat higher coloured, and generally without sediment. In the latter stage it was generally paler than natural, and the settlement largely and solely flocculent. On the 30th, the day after catching cold, the urine however put on a considerable change, such as is described in the narrative of that day.

“ She never appeared to have any rigors from the cure of the intermittent fever to the 29th, being the day of catching cold, nor any increased heats in that interval, except those already described as ushering in the hæmorrhage; and as to perspiration, not the least was perceptible during her illness, but on the contrary the skin always felt hot and dry.

“ The weather, for several months prior to the first accession of this complaint, had been exceedingly changeable. In the autumn there was much rain, which continued into December; to this succeeded alternate frosts and thaws, with almost daily changes of the wind. A severe storm of frost and snow, at length set in the beginning of January, and with the exception of one or two intermissions of slight thaws, continued to the commencement of her disorder.

“ Newfolme, the place of her residence, is a small village situated rather in a mountainous part of the country, on the middle of a declivity of considerable extent. It is exposed much to the north and north-west winds, and I have thought its inhabitants unusually subject to feverish complaints; and besides I once met with another case of tertian in this place, happening to a girl of about the same age and temperament, and who had never menstruated. The disorder was idiopathic, and unattended with any anomalous symptoms. The paroxysms returned at equal intervals, and were terminated by copious perspiration, and easily gave way to the bark.

“ During a practice of almost twenty years in this town and neighbourhood I never saw an intermittent as a primary affec-

tion, happening to a native of the place, excepting in these two cases; yet, notwithstanding this, many people formerly, who were in the yearly habit of repairing to the eastern part of this county as reapers, imported this disorder on their return, and which generally continued with them throughout the winter, but either left them spontaneously on the return of warm weather, or easily yielded to the bark. Latterly, however, this complaint is far less frequently observed than formerly, a circumstance arising either from the harvests being somewhat earlier, or what is more probable, the country being more cleared and better drained.

“ A great proportion of these intermittents were tertian, and the unhappy sufferers labouring under them generally were taking different remedies or nostrums throughout the winter, and at the same time imprudently exposing themselves to the cold. For instance, the bark they would take for three or four days, till imagining themselves well, they then would generally discontinue its use, and consequently incur a relapse, against which this remedy, or some other, was again had recourse to, with usually no better success than before. Thus were those unhappy people harassed throughout the winter; and even on the return of warm weather, were with more difficulty cured than those whose complaint had continued uninterruptedly throughout the winter, and for which no remedies had been taken; and besides, I have thought that affections of the liver, dropics, &c. were more apt to succeed to the former class of patients than the latter.”

The Double TERTIAN. Sp. I. var. 2. C.

Tertiana Duplex, Sauv. sp. 13. Vog. G. 12. Sennert. Cleghorn. Duplicata, Lin. 18.

The double tertian comes on every day; but differs from the quotidian, in so far, that paroxysms do not answer to each other singly, but alternately. The first day, for instance, the fit will come on in the forenoon, the third in the forenoon, and the fourth in the afternoon.

Of these fevers we shall give the following description from Cleghorn's treatise on the diseases of Minorca: “ They are called *double tertian* when there are two fits and two intervals within the time of each period. But commonly there is some difference between the two fits, either in respect of the hour they come at, the time of their duration, or the nature and violence of their concomitant symptoms. Some double tertians begin in this manner.—On the evening of Monday, for example, a slight fit comes on, and goes off early next morning; but on Tuesday, towards the middle of the day, a more severe paroxysm begins, and continues till night. Then there is an interval to Wednesday evening, when a slight fit commences a new period of the fever, which proceeds in the same manner as the first; so that (accord-

ing to the way physicians calculate the days of diseases, by beginning to reckon from the first hour of their invasion), both paroxysms happen on the odd days, while the greatest part of the even days is calm and undisturbed. But in most turbulent tertians the patient has a fit every day of the disease; the severe ones commonly appearing at noon upon the odd days, the slight one towards evening on the even days; though sometimes the worst of the two fits happen on the even days.

“ There is a tertian fever sometimes to be met with, during each period of which there are three different fits, and as many intervals. For example, towards Monday noon the patient is seized with a paroxysm, which declines about five or six o'clock the same evening: a few hours after, another fit begins, and continues till morning: from which time there is an interval till Tuesday evening, when a third fit comes on, and lasts most part of the night. On Wednesday there are again two paroxysms, as on Monday and on Thursday, like that of Tuesday; and thus the fever goes on with a double fit on each of the odd days, and a single fit on the even days.

“ In double tertians, that interval is the most considerable which follows the severe fit; for the slight fit oftener ends in the remission than intermission, and frequently lingers till the other approaches: hence it is, that the night preceding the vehement fit is much more restless than that which comes after it, as has been observed by Hippocrates. In double tertians, the vehement fit often comes on a little earlier in each period, while the slight fit returns at the same hour, or perhaps later and later every other day; so that the motions of one have no influence on those of the other; from whence it appears, that each of these fits hath its own proper independent causes.”

Duplicated TERTIAN. Sp. I. var. 2. D.

Tertiana duplicata, Sauv. sp. 14. Jones. River.

This hath two fits on the same day, with an intermediate day on which there are none. This also does not differ in any remarkable particular from those already described.

The Triple TERTIAN. Sp. I. var. 2. E.

Tertiana triplex, Sauv. sp. 15. Cleghorn.

Semitertiana, Hoffman.

Semitertiana primi ordinis, Spig.

This differs from the former in having a single and double fit alternately: thus, for instance, if there are two fits the first day, there is only one the second, two the third, one the fourth, &c. Its cure the same as before.

The *Semi-TERTIAN*. Sp. I. var. E.Hemitritæus, *Celf.*Semitertiana, *Cleghorn.*Semitertiana secundi ordinis, *Spig.*Amphimerina hemitritæus, *Sauv.* sp. 8.Amphimerina pseudo hemitritæus, *Sauv.* sp. 9.

The semitertian is described by Dr. Cullen as having only an evident *remission* between its paroxysms; more remarkable between the odd and even day, but less so between the even and odd one. For this reason, he adds, that possibly some semitertians ought rather to be classed among the remittents; and owns that it is difficult to settle the boundaries between them. But Cleghorn, whom he quotes, describes it in the following manner: "A fit begins on Monday noon, for example, and goes off the same night. On Tuesday afternoon a second fit comes on, and gradually increases till Wednesday night, when it terminates. On Thursday morning there is such another interval as happened on Tuesday morning. But on Thursday afternoon another long fit like the preceding commences; and returning regularly every other day, leaves only a short interval of ten or twelve hours during the eight-and-forty.

Concerning the cure of these fevers, Dr. Cullen observes, that though no entire apyrexia occurs, the bark may be given during the intermissions; and it should be given though the remissions be inconsiderable; if, from the known nature of the epidemic, intermissions or considerable intermissions are not to be expected, and that great danger is apprehended from repeated exacerbations.

The *Sleepy TERTIAN*. Sp. I. var. 3. G.Tertiana carotica, *Sauv.* sp. 10. *Werholf.*Tertiana hemiplegica, *Sauv.* sp. 20. *Werholf.*Quotidiana soporosa, *Sauv.* sp. 8. *Car. Pis.*Febris caput impetens, *Sydenham*, Ep. ad R. Brady.

This, according to Vogel, is a most dangerous species, and very commonly fatal; for which reason he ranks it among those intermittents which he calls *malignant*. Sometimes he tells us the alarming symptom of a sleepiness comes on, not at the beginning of the disease, but will unexpectedly occur during the third, fourth, fifth, or sixth paroxysm. It commonly begins with the cold fit, and continues during the whole time of the paroxysm, and, becoming stronger at every succeeding one, at last terminates in a mortal apoplexy. Sometimes fevers of this kind rage epidemically. Vogel relates, that he saw a simple tertian changed into one of these dangerous fevers. The patient was a woman of a delicate constitution, and the symptoms appeared in consequence of her being put in a violent passion: however, it occurred but once, and she recovered. Hoffman mentions a *carus* in a double tertian

occurring seven times without proving mortal: though Vogel says, that the powers of nature are very seldom sufficient to conquer the disease.

In 1678, Dr. Sydenham tells us that intermittents raged epidemically in London, where none had appeared before from 1664. Of them "it is to be noted (says he), that though quartans were more frequent formerly, yet now tertians or quotidians were most common, unless the latter be entitled double tertians; and likewise, that though these tertians sometimes began with chillness and shivering, which were succeeded first by heat, and soon after by sweat, and ended at length in a perfect intermission, returning again after a fixed time, yet they did not keep this order after the third or fourth fit, especially if the patient was confined to his bed and used hot cardiacs, which increase the disease. But afterwards this fever became so unusually violent, that only a remission happened in the place of an intermission; and approaching every day nearer the species of continued fever, it seized the head, and proved fatal to abundance of persons."

From this description of Sydenham's we may have an idea of the nature of the disease. As to its cure, he strongly recommends the bark; telling us, that, even in the *most continued* kind of intermittents, "the nearer the intermittent approaches to a continued fever, either spontaneously, or from using too hot a regimen, so much the more necessary it is to exhibit a larger quantity of bark;" and that he took advantage of a remission though ever so small.

The *Spasmodic* or *Convulsive* TERTIAN. Sp. I. var. 3. H.

Tertiana asthmatica, *Sauv.* sp. 6. *Bonnet*.

Tertiana hysterica, *Sauv.* sp. 8. *Wedel.* A. N. C. Dec. I. A. II. obs. 193.

Hysteria febricosa, *Sauv.* G. 135. sp. 8. A. N. C. Dec. I. Ann. II.

Tertiana epileptica, *Sauv.* sp. 16. *Caulder.* *Lautter*.

Quotidiana epileptica, *Sauv.* sp. 3. *Edinb. Essays*, vol. 5. art. 49.

Ecclempsia febricosa, *Sauv.* G. 133. sp. 17.

Epilepsia febricosa, *Sauv.* G. 134. sp. 9.

Tertiana tetanodes *Medici* Beobacht I. Band.

Tetanus febricosus, *Sauv.* G. 122. sp. 10. *Stork*, Ann. Med. II.

Tertians of this kind occur with very different symptoms from those of the true ones, and sometimes even with those which are very extraordinary. In some they are attended with symptoms of asthma, in others with those of hysterics, in others with convulsions. Where the symptoms of asthma occur, the disease must be treated with diuretics and antispasmodics joined with the bark. In the hysteric asthma the fit comes on with cold, yawning, cardialgia, terror, and dejection of mind. The disease is to

be removed by mild aperients and antihysterics joined with the bark.

Of the convulsive tertian we have a most remarkable instance in the Edinburgh Medical Essays, vol. V. The patient was a farmer's son about 26 years of age, of a strong plethoric habit of body. He had laboured under an ague half a year, and had taken a great deal of bark. While he was telling his case to the surgeon (Mr. Baine of Pembroke), he was suddenly taken with a violent stamping of his feet; and the convulsions gradually ascended from the soles of his feet to his legs, thighs, belly, back, and shoulders. His head was then most violently convulsed, with a total deprivation of speech; but he had a most dismal vociferation, that might have been heard at a considerable distance, his abdomen and thorax working and heaving violently and unusually in the mean time. This fit having lasted half an hour, a profuse sweat broke out over all his body, which relieved him; and he then became capable of answering such questions as were put. These extraordinary fits, he said, had been occasioned by a fright, and his neighbours had concluded he was bewitched. They returned sometimes twice a-day, and always at the times the ague used to return. During the paroxysm his pulse was very high and quick, his face much inflamed, and his eyes ready to start out of his head. After the fit was over, he complained of a most torturing pain of the bowels. His tongue was generally moist, and he had a suppression of urine.—This disease, however, was totally subdued by the use of the bark, mercurials, antispasmodics, opiates, and saline draughts.

The Eruptive TERTIAN. Sp. I. var. 3. I.

Tertiana petechialis, Sauv. sp. 4. Donat. Lautt.

Tertiana scorbutica, Wedel. A. N. C. Dec. I. A. II. obs. 193.

Tertiana urticata, Sauv. sp. 22. Planchon. Journ. de Med. 1765. Cleghorn.

Tertiana miliaris, Sauv. sp. 21. Walthier.

This species of tertian is accompanied with red or livid blotches on the skin, or an eruption like that occasioned by the stinging of nettles. In the latter case Dr. Cleghorn says the disease is very dangerous; and as the former indicates an incipient dissolution and putrefaction of the blood, it may also be reckoned of very dangerous tendency.

The Inflammatory TERTIAN. Sp. I. var. 3. K.

Tertiana pleuritica, Sauv. sp. 4. Vales. Lautt.

Pleuritis periodica, Sauv. G. 103. sp. 14.

Tertiana arthritica, Sauv. sp. 5. Morton. Lautt.

Sauvages informs us, that he has seen a true and genuine

pleurisy having all the pathognomic signs of the disease, but assuming the form of an intermittent; that is, the patient is one day affected with the pleurisy, and the next seemingly in perfect health. He also tells us, that in the month of May, 1760, a tertian raged epidemically, which after the third fit imitated a pleurisy, the pain of the side and difficulty of breathing coming regularly on, and the fever from an intermittent becoming a remittent; the blood had also the same appearance with that of pleuritic persons, and the distemper yielded to bleeding and gentle cathartics.—Morton also informs us, that he has observed similar disorders an hundred times over, which were always certainly and safely cured by the Peruvian bark.

The TERTIAN complicated with other Disorders. Sp. I. var. 4.

Tertiana scorbutica, *Sauv.* sp. 9. *Etmuller. Timæus.*

Tertiana syphilitica, *Sauv.* sp. 17. *Deidier.*

Tertiana verminosa, *Sauv.* sp. 18. *Stiffer.* in *Act. Helmstad.*
Lanfcif. de noxis palud. Pringle. Ramazzini. Van den Bosch.
de const. vermin.

The scorbutic tertian, according to Sauvages, is exceedingly anomalous, its periods being sometimes much anticipated, and sometimes much postponed. It is exceedingly obstinate, and will return if the body be not cleared of its scorbutic taint. The patient is affected with lancinating pains of a wandering nature. The urine lets fall a dusky red sediment, or a thick branny matter is copiously scattered up and down in it, seemingly tinged with blood. The usual symptoms of scurvy, viz. livid spots, and rotten fetid gums, also frequently occur. For this the Peruvian bark is very useful, both as a febrifuge and antiscorbutic.

A tertian accompanied with worms is taken notice of by Sir John Pringle in his treatise on the diseases of the army. The worms, he tells us, were of the round kind; and though we are by no means to reckon them the cause of the fever, they never failed to make it worse, occasioning obstinate gripings or sickness at stomach. In these cases stitches were frequent; but, being flatulent, were not often relieved by bleeding. The worms were discharged by vomiting as well as by stool. For discharging these worms, he commonly gave the following:

(No. 18.) ℞ Pulv. rad. rhab. ʒfs.

Calomel. gr. xij. m. f.

without observing any inconvenience from such a large dose of mercury. Anthelmintics, which act slowly, had little chance of doing good; for though worms will sometimes lie long in the bowels without giving much uneasiness to a person otherwise well, yet in a fever, especially one of a putrid kind (to which his intermittents always seemed to incline), the worms being disturbed by the increase of heat, and the corruption of the humours in the

primæ viæ, begin to move about, and struggle to get out. Lanci-
sius, who makes this remark, adds, that upon opening the bodies
of some who had died at Rome of fevers of this kind, wounds
were found in the intestines made by the biting of the worms;
nay that some of them had even pierced through the coats of the
guts, and lay in the cavity of the abdomen. Pringle never had
any instance of this; but knew many cases in which the worms
escaped by the patient's mouth, though there had been no previ-
ous retching to bring them up. One soldier was thrown into
violent convulsions, but was cured by the above-mentioned
powder.

The TERTIAN varied from its Origin. Sp. I. var. 5.

Tertiana accidentalis, *Sauv.* sp. 12. *Sydenham.*

Tertiana a scabie, *Sauv.* sp. 12. *Juncker*, tab. 80. *Hoffman*, II.
p. 12.

The existence of fevers of this kind, as we have already ob-
served, is denied by Dr. Cullen; the accidental fever of Sauvages
was said to arise from any slight error in the non-naturals, and
consequently was very easily cured. That which arose from the
repulsion of the itch, was cured as soon as the eruption returned.

The TERTIAN with only a remission between the fits. Sp. II.

Tritæophya, *Sauv.* Gen. 85. *Sag.* p. 695.

Tritæus, *Lin.* 21.

Hemitritæa, *Lin.* 23.

Tertianæ remittentes et continuæ Auctorum.

Tertianæ subintrantes, proportionatæ, subcontinuæ, *Torti.*

Tertiana subcontinua, *Sauv.* sp. 19.

Quotidiana deceptiva, *Sauv.* sp. 2.

Amphimerina semiquintana, *Sauv.* sp. 24.

Tritæophya deceptiva, *Sauv.* sp. 10.

Causus *Hippocratis.*

Tritæophya causus, *Sauv.* sp. 2.

Febris ardens *Boerhaavii*, aph. 738?

Tertiana pernicioſa, quæ simulata tertiani circuitus effigie
lethalis, et mille accidentibus periculosissimis implicata, existit.

Lud. Mercatus.

Tertiana pestilens, *P. Sal. Diversus.*

Tertiana maligna pestilens, *Riverii.*

Morbus Hungaricus. *Lang. Lemb. Sennert. Jordan.*

Languor Pannonicus, *Cober.*

Amphimerina Hungarica, *Sauv.* sp. 10.

Hemitritæus pestilens, *Schenck*, ex *Corn. Gamma.*

Febres pestilentes Ægyptiorum. *Alpin.*

Febris tertiana epidemica, *Bartholin.*

Febres epidemicæ, autumni 1657 et 1658, *Willis.*

Febris synoches epidemica, ab anno 1658 ad 1664, et postea ab anno 1673 ad 1691, *Morton*.

Febres autumnales incipientes, *Sydenham*.

Affectus epidemicus Leidensis, *Fr. Sylvii*.

Morbus epidemicus Leidensis, 1669, *Fanois*.

Tertianæ perniciosæ et pestilentes, et febres castrenses epidemici, *Lancisi*.

Febres intermittentes anomalæ et mali moris, *Hoffman*.

Febris cholericæ minus acuta, *Hoffman*.

Febris epidemica Leidensis, anno 1719, *Koker*, apud *Haller* Disp. tom. V.

Amphimerina paludosa, *Sauv.* sp. 19.

Febris paludum, *Pringle*.

Bononiensis constitutio hiemalis 1729, *Beccari* in A. N. C. vol. III.

Amphimerina biliosa, *Sauv.* sp. 22.

Febris castrensis, *Pringle*.

Febris putrida epidemica, *Huxham* de aëre ad ann. 1729.

Febris biliosa Lausanensis, *Tissot*.

Tritæophya Wratislaviensis *Sauv.* sp. 3. Hahn. Epidemia ver-
na Wratislav. in App. ad. A. N. C. vol. X.

Tritæophya Americana, *Sauv.* sp. 12.

Febris anomala Batava, *Grainger*.

Morbus Naronianus, *Pujati*.

Febris continua remittens, *Hillary's* diseases of Barbadoes.

Febris remittens Indiæ orientalis, *Lind*, diss. inaug. 1768.

Febris critica et febr. biliosa æstatis, *Rouppé*.

Febris remittens regionum calidarum, *Lind* on the diseases of hot climates.

A. Tertianæ cholericæ sive dysentericæ, *Tort.* Therap. Special. lib. iii. cap. 1. *Lautter.* Hist. Med. cas. 6. 16. 17. 20. *Morton*, App. ad. Exerc. II.

B. Tertianæ subcruenta sive atrabilaris, *Tort.* ibid. Never seen by *Cleghorn*.

C. Tertianæ cardiaca, *Tort.* ibid. *Lautter.* Hist. Med. cas. 15. 23.

Amphimerina cardiaca, *Sauv.* sp. 5.

Tritæophya affodes, *Sauv.* sp. 6.

Febris continua affodes, *Vog.* 27.

D. Tertianæ diaphoretica, *Tort.* ibid.

Tritæophya typhodes, *Sauv.* sp. 4.

Tritæophya elodes, *Sauv.* sp. 5.

Febris continua elodes, *Vog.* 21.

E. Tertianæ syncopalis, *Tort.* ibid. *Lautter.* cas. 11. 12. 13. 15. 16.

Tritæophya syncopalis, *Sauv.* sp. 1.

Amphimerina syncopalis, *Sauv.* sp. 4.

Amphimerina humorosa, *Sauv.* sp. 6.

Febris continua syncopalis, *Vog.* 29.

F. Tertianæ algida, *Tort.* *ibid.* *Lautter.* cas. 13.

Amphimerina epiala, *Sauv.* sp. 3.

Amphimerina phricodes, *Sauv.* sp. 7.

Tritæophya leipyria, *Sauv.* sp. 9.

Tertianæ leipyria, *Sauv.* sp. 23. *Valcarengi* *Med. Ration.* p. 18.

Febris continua epiala et leipyria, *Vog.* 19. et 24.

G. Tertianæ lethargica, *Tort.* *ib.*

Tritæophya carotica, *Sauv.* sp. 7. *Lautter.* 1. 7. 14.

Tertianæ apoplectica, *Morton.* *Exerc.* I. cap. ix. hilt. 25.

Tertianæ foporosa, *Werthof.* de febr. p. 6.

Febris epidemica Urbevætana, *Lancif.* de noxis pal. effluv. I. II.

c. 3.

The remittent fevers are much more dangerous than the true intermittents, as being generally attended with much greater debility of the nervous system and tendency to putrescency in the fluids than the latter. Sauvages divides his tritæophya, a remittent tertian, into the following species.

1. *Tritæophya syncopalis*, or that attended with fainting. It begins like a tertian, with cold succeeded by heat and profuse sweating; but attended with much more dangerous symptoms, such as cardialgia, enormous vomiting, great weakness, small contracted pulse, coldness of the extremities, and unless timely assistance be given, kills during the second or third paroxysm.

2. The *causæ*, or burning fever of Hippocrates, returns every third day without any new sensation of cold; and is attended with great thirst, heat, but without diarrhœa or sweat, and continues only for one week or two at the utmost. It attacks chiefly young people of a robust and bilious habit of body, who have been accustomed to much exercise, and exposed to the sun during the heats of summer, and have also used a phlogistic regimen. The tongue is dry, sometimes black; the urine of a red or flame colour; together with pain of the head, anxiety, and sometimes other symptoms still more dangerous.

3. *Tritæophya Vratislaviensis*, was a pestilential disease occasioned by famine, during which the people fed on putrid aliments: the air was infected by the vast number of bodies of those slain in battle, and the inhabitants were also dejected by reason of being deprived of their harvest, and other calamities; to all which was added the continuance of a calm in the atmosphere for a long time. It began with an acute fever, leipyria or coldness of the external parts and sensation of burning heat inwardly; general weakness; pain of the head and præcordia; ferous or bilious diarrhœa; a delirium, in some furious, and accompanied with a dread of being exposed to the air; on the second day the thirst was violent, attended with a bilious vomiting as well as diarrhœa, tough viscid spitting, fainting, burning heat in the bowels, the tongue dry and

seeming as if burnt with a hot iron, a suppression of the voice, anxiety, stupor; after which quickly followed convulsions and death. In some fevers a leipytia came on with an exceeding great cold of the extremities, presently followed by an intolerable heat of the viscera, with symptomatic sweats, violent diarrhœa, followed by a very itchy miliary eruption. On the fourth day came on copious sweats, spasms of the lower jaw, nausea, involuntary passing of urine, slight delirium, a flux of ichorous matter from the nostrils, an exceeding tough spitting, an epilepsy, and death. Professor Hahn, who gives the history of this disease, was himself attacked by it, and suffered in the following manner: On the first day was a violent feverish paroxysm without rigor, a sharp pain in the occiput, and immediately an inflammatory pain over the whole head; the feet were extremely cold, and the extremities rigid, with spasms. The pain continued to increase daily to such a degree, that the contact of the air itself became at last intolerable; a dejection of mind and incredible weakness followed; he passed restless nights with continual sweating, heavy and pained eyes, and an universal sensation of rheumatism over the whole body. On the third day the pains were assuaged, but he had a very bad night. On the fourth day all the symptoms were worse, the feet quite chilled, the hands very red and agitated with convulsive motions; he was terrified with apprehensions of death, and had a vomiting every now and then: this day sponges dipped in cold water were applied over the whole body, and he used cold water for his drink. On the eighth day the pulse was convulsive; and the pains were so violent, that they made him cry out almost continually. On the ninth day he was delirious, and threw up some grumous blood. On the eleventh his pulse was more quiet, and he had a sweat; a decoction of the bark was given: his voice was broken, his speech interrupted, and his teeth chattered one upon another. On the twelfth his jaw was convulsed, he had a risus sardonius, and deafness; after which, the paroxysms returned less frequently, and only towards night. On the fourteenth he had a chilling cold over the whole body, a cold sweat; frequent lotions were applied, and all the symptoms became milder. On the eighteenth he had a quick delirium, but fainted as soon as taken out of bed; a sensation of hunger, followed by copious sweats; profound sleep; an aversion from noise; every thing appeared new and extraordinary. On the thirty-sixth a cholera; on the forty-eighth a scaling off of the skin, and falling off of the nails. This epidemic carried off above 3000 people at Warsaw. Frequent lotion of the body either cold or tepid, watery glysters, and the copious introduction of watery fluids under the form of drink, were of service. But the most favourable crisis was under the form of some cutaneous eruption.

4. *Tritæphya typhodes*. The principal symptom of this fever was a continual sweat, with which the patients were almost always

wet; with paroxysms returning every third day. Sauvages tells us, that he had twice an opportunity of observing this fever; one was in the teacher of an academy, about 40 years of age, and of a melancholic temperament. He sweated every other night so plentifully, that he was obliged to change his linen nine times; and even on the intermediate days was never perfectly free of fever, and had his skin moistened with sweat. The other was of a woman who went about in man's clothes, and was discovered only after her death. The disease began with a slight sensation of cold, after which she sweated for eight hours. It was attended with the highest debility, anxiety, and at the same time an insatiable hunger.

5. *Tritæophya elodes*, was an inflammatory epidemic, but not contagious, terminating about the 14th or 21st day. The disease came on in the night-time, with disturbed rest, universal weakness, watchings, great heat and sweat, redness of the face and almost of the whole body, sparkling eyes, the tongue dry and white; a hard, tense, and turgid pulse: about the third day a kind of phrensy frequently came on with the feverish paroxysm, the forerunner of an universal miliary eruption; or, what was worse, with purple spots so close together, that they looked like an erysipelas of the whole body. Sometimes blisters of the size of small pearls, filled with acrid serum, appeared on the neck, armpits, and trunk of the body, which were of all others the most dangerous. There was a variety of the disease, which our author calls the *humoralis*, and in which the pulse was soft and feeble, with greater weakness over the whole body, and the disposition to sleep more frequently than in the other; the eyes languid; the tongue very white, but not dry; and worms were discharged.

6. *Tritæophya affodes*. This species arose from a foulness of the primæ viæ, and the effluvia of waters in which hemp had been steeped. It began with rigor, followed by great heats, restlessness, tossing of the limbs, terrible faintings, immoderate thirst, dryness of tongue, delirium, and at length excessive watchings; these last, however, were less dangerous than vertigoes or comatose dispositions, which brought on convulsions or apoplexies.

7. *Tritæophya carotica*. This had exacerbations every other evening; and its distinguishing symptom was an excessive inclination to sleep, preceded by a severe headach, and followed by delirium, and sometimes convulsions; the tongue was black, and the patient insensible of thirst after the delirium came on. In those cases where the disease proves fatal, a subfultus tendinum and other grievous symptoms come on.

8. *Tritæophya leipyria* is only a variety of the tritæophya caufus, already described.

9. *Tritæophya deceptiva*. This species at first assumes the appearance of a continued fever; but afterwards degenerates into a

remittent, or even an intermittent. It is described by Sydenham, but attended with no remarkable symptoms.

10. The last of Sauvages's species of *Tritæophya* belonging to the remitting tertian is the *Americana*. This, according to Sauvages, is the ardent fever with which the Europeans are usually seized on their first coming to America, and it generally carries off one half of them. Of this there are two varieties, the *very acute* and the *acute*. The very acute ends before the seventh day. It comes on a few days after the person's arrival, with loss of appetite, with dyspnœa and sighing from weakness, head-ach, lassitude, pain of the loins: a pyrexia succeeds, with great thirst, sweat, and heat; the sickness increases, nausea comes on, with vomiting of porraceous bile; the tongue rough, the extremities often cold; watching, furious delirium; and the patient frequently dies on the third day. Copious sweats, and a plentiful hemorrhagy from the nose on the fifth day, but not sooner, are serviceable; but a bilious diarrhœa is the best crisis of all.

The acute kind terminates most frequently on the ninth, but very rarely goes beyond the fifteenth day. Death frequently comes on between the fourth and seventh day. It begins with head-ach, pain in the loins, and sometimes shivering; great lassitude, dyspnœa, thirst; burning fever, increasing every third day; inflation of the abdomen, pain at the pit of the stomach, nausea, and bilious vomiting. Such is the state of the disease within twenty-four hours. The eyes are red, and full of tears; the urine pellucid; there is a low delirium, and continual anxiety; the tongue is dry and red, and sometimes, though rarely, black, which is a still worse sign; the pulse, formerly strong and full, sinks about the fourth day, and becomes tense and spasmodic. If a carus then comes on, the patient dies on the fifth or sixth day; but if the pulse keeps up, and no carus comes on, a crisis is to be expected by sweat, by a copious hemorrhagy from the nose, or, which is still more safe, by a bilious diarrhœa, which is never salutary if it comes on before the fifth day.

To the remitting tertian also belong the following species mentioned by Sauvages, viz.

1. *Tertiana subcontinua*. This begins like a genuine tertian, and at first hath distinct paroxysms; but these grow gradually more and more obscure, the disease acquiring daily more of the appearance of continued fever, by which it is to be distinguished from the other varieties of this species. It is not unfrequently joined with those symptoms which attend the fatal fever already mentioned; as cardialgia, cholera, syncope, &c. but in a much less degree. The disease commonly begins with little or no sense of cold, but rather a sensation of heat; when the tertian is doubled, it has first a slighter and then a more severe fit; and thus goes on with an exacerbation on the even days: and though it should change from a dou-

ble into a single tertian, we are still to suspect it, if a weak fit is the forerunner of a very strong one. This change of the tertian into a continued fever is also to be prognosticated if a heat remarkable to the touch is perceived on the day of intermission, together with some disturbance of the pulse, thirst, and dryness of the tongue; all of which show an universal tendency to inflammation: the same is foretold by the urine being in small quantity, and very red, or of a saffron colour; also an ulcerous or aphthous inflammation of the throat, with difficulty of swallowing, or any very severe symptom coming on in the beginning of the disease, excepting only a delirium, which is easily removed.

2. *Quotidiana deceptiva*. This is a disorder of an inflammatory kind, with a strong tendency to putrescency, and sometimes assumes the form of a quotidian. In it the patient frequently complains of cold when he really is hot, and the remission is very indistinct; and the disease is known by the great languor of the patient and the foulness of his tongue.

3. *Amphimerina cardiaca* is an acute malignant fever, with daily exacerbations, attended with fainting and vomiting of green bile. Afterwards, the weakness increasing, the patient's extremities grow cold, and a profuse sweat comes on, which is frequently succeeded by death on the fourth day. Another species resembling this Sauvages calls the *syncopalis*; but the *cardiaca* differs from it in being attended with cardialgia.

4. *Amphimerina paludosa*. This is the fever described by the British physicians under many different names, and appearing under various forms, according to the different constitutions of the patients. This fever in the East Indies, according to Dr. Lind of Windsor, generally comes on suddenly, and begins with a sense of debility and a very great lowness of spirits. These symptoms are attended with a greater or less degree of chillness, a dizziness, a nausea, very acute pains in the head and loins, and a trembling of the hands; the countenance is pale, the skin commonly very dry and corrugated, the eyes dull and heavy, the pulse quick and small, the breath generally difficult, and interrupted with hiccough.

As the paroxysm increases, the chillness now and then gives way to irregular heats, which soon become violent and permanent; the nausea likewise increases; and in some there comes on a vomiting, in which they throw up a great deal of bile. Sometimes bile is likewise voided by stool. The skin grows red; the eyes small, and sometimes not a little inflamed. The pulse becomes fuller, and the breath more difficult, attended with great restlessness and a troublesome thirst; notwithstanding which (so great is the nausea) the patient cannot endure any kind of liquids. The tongue becomes foul, and the pain of the head and loins more violent; a delirium then follows; a slight moisture appears on the face, and from thence spreads to the other parts; whilst the violence of the

other symptoms abates, and shows the beginning of a remission, which is completed by plentiful sweats.

On the fever's remitting, the pulse returns almost to its natural state; the pains of the head and loins still continue, though somewhat less violent, as likewise the nausea and want of appetite. When the disease gains strength the remission is scarcely obvious, and is immediately followed by another paroxysm; which begins, not indeed with so great a shivering, but is attended with a greater pain of the head, the greatest anxiety, a heart-burn, nausea, vomiting, and bilious stools. The matter most commonly evacuated by vomit and stool is whitish, like chalk and water, or curdled milk which is vomited by sucking children, when the curd is much broke down. A heat, immoderate thirst, and delirium, now come on. The tongue becomes more foul; the teeth and inside of the lips are covered with a black crust; the breath grows hot and fetid: another remission ensues, attended with a sweat; but this remission is both shorter and less obvious than the first.

This second remission is succeeded by a paroxysm, in which the symptoms are far more violent than in the former; that which the patient discharges by vomiting and purging is more fetid; the mouth, teeth, and inside of the lips, are not only covered with a black crust, but the tongue becomes so dry and stiff, that the patient's voice can scarce be heard. Violent delirium, with restlessness and anxiety, come on chiefly during the paroxysm; nor do these symptoms abate till the fever remits, and the patient sweats.

When the fever becomes so violent, during the third fit, as to end in death, which is generally the case, some of the sick have a coma; in others the delirium becomes more violent. The discharges now become more fetid, and have a cadaverous smell; the stools are involuntary; the pulse is so quick, small, and irregular, that it is scarce to be counted, or even felt; a cold sweat is diffused over the whole body, especially the head and neck: the face becomes Hippocratic and convulsed; the patient picks the bed-clothes; a sub-sultus tendinum comes on; the sick lie constantly on their backs and insensibly slide down to the foot of the bed; their extremities grow cold; they are then seized with convulsions, with which the scene closes.

In this fever, the urine, which at the beginning is pale, becomes of a deeper colour by degrees, but without depositing any sediment. There seldom or never appear any petechiæ, and the prickly heat which was before on the skin vanishes on the first appearance of the fever. But though these were the general symptoms of this disorder, they varied in the different subjects, and at different seasons of the same year. The pulse, for example, in some, was quick in the beginning of the disorder; in others, it varied with the other symptoms. The skin was generally dry in the beginning of the fit; but in some it was moist, and covered with sweat from the

very first beginning of the disease. In the month of September, when the disorder raged most, the remissions were very imperfect and obscure; but, on the return of winter and the healthy season, they became more regular, and the disease assumed the appearance of an intermitting fever, to such a degree as at length not to be distinguished from it. In some the remissions could scarce be perceived, and the fever continued for two weeks without any material change for the better or the worse. At this time numbers were seized with it. When the disorder continued for any time without a change, it generally ended in death; while the weather grew better, it sometimes, in the space of a few days, from a common fever became an intermitting one, and the patient recovered, unless his liver, which was sometimes the case, happened to be affected. The cure of an inflammation of the liver proved uncertain and tedious: as it was commonly followed by a colliquative diarrhœa, which generally endangered the patient's life.—Every succeeding paroxysm was observed to be more dangerous than the preceding; the third generally proved fatal; some died during the first. When this happened, the fever, in the language of the country, was called a *puca*, that is, a strong fever.

This disease, according to Dr. Lind of Haflar hospital, is the autumnal fever of all hot countries, the epidemic disease between the tropics, and the disease most fatal to all Europeans in all hot and unhealthy climates. All authors agree that intermittents in general, but particularly this dangerous kind of them, are produced by heat and moisture. Dr. Lind of Windsor remarks, that the European seamen are very subject to the fever above mentioned when they happen to arrive at Bengal in autumn. They are predisposed to it from the nature of their food, their confinement on board, the very great heats to which they are exposed during the voyage, and their lying for hours together exposed to the night colds.

Most of the meat used by the crews of those ships is salted, and often in a putrid state, without any fresh vegetables, they having only biscuits, and some other farinaceous matters. The quantity of the vinous or spirituous liquors allowed them is by far too small to subdue the putrescent disposition of their animal-food. Their fluids consequently become, from day to day, more and more putrescent, and of course the more apt to breed and contract this disorder. This disposition is likewise induced by their being stowed very close together, and that for a considerable length of time, and in a foul air, especially when the weather happens to be too stormy to permit the hatches and port-holes to be kept open.

Though the heats they endure in the voyage to India are less considerable than those of the country itself, yet they are too much for an European constitution to bear. The general heat at sea within the tropics is about 84° of Fahrenheit's thermometer, which is sufficient to relax them, and promote a corruption of their hu-

mours, especially when it coincides with the above causes. It likewise creates a languor and indolence, which alone are sufficient to increase that putrescence. These causes are apt to be considerably aggravated by the men being often exposed when on duty, for hours together, to rain, damp, and cold air; a circumstance which frequently happens to them when working their ships up the river Ganges in the night-time. Hence the perspiration is checked, and the excrementitious fluid which used to be discharged by the skin being retained in the body, contributes, he thinks, very much towards the predisposition to this disease.

But the most powerful of all the remote causes is justly thought to be the effluvia of marshes replete with putrid animal substances. We have not, however, been able to determine from what kind of putrid animal substances these effluvia derive their virus. For that every kind of putrefaction has not such an effect appears from this, that neither practical anatomists, nor those who by their trades are exposed to the putrid effluvia of animals, for instance, such tanners and butchers as keep their shops and stalls very dirty, are more subject than others to putrid diseases. Nor are the ship-stewards and their servants, whose business it is to deliver out their provisions to the ships' crews, and who spend the most of their time amongst the putrid and rancid effluvia of the places in which those provisions are kept, more subject to putrid fevers than their ship-mates. But whatever be in this, we are well assured that some particular putrid fermentations produce noxious vapours, which, united with those of marshes, render them the more pernicious. Hence evidently proceeds the extreme unhealthfulness of a place called *Culpi*, on the eastern bank of the Ganges. The shores about it are full of mud, and the banks covered with trees. Opposite to the place where the ships lie there is a creek, and about a mile from its entrance stands the town of *Culpi*: the ships lie about a mile from the shore. None of the sailors on board the ships stationed at this place enjoyed their health. The burying-ground also contributed not a little to spread the infection. The ground being marshy, the putrid water flowed from the old graves into the new ones, which infected the grave-diggers and those that attended the funerals; and from this cause many were suddenly seized while they were performing the last duty to their companions. This place has ever been remarkable for the unhealthfulness of its air. It was once customary to send some of the Company's servants here to receive the cargoes of the ships, and send them to Calcutta; but so many of them died on this duty, that the Company was at length obliged to dispense with it.

Hence it plainly appears, how apt putrid animal and vegetable substances are to render the effluvia of fenny places more pernicious than they would otherwise be. The reason why great inundations of the Nile and Ganges are followed by a healthy season is,

that by this means the putrid animal and vegetable substances dispersed over the contiguous countries are carried off into the sea.—The noxious vapours arising from fens spread but a little way. Dr. Lind has often known ships' crews at a very little distance from the shore quite free from this disorder. But although these marsh miasmata first bring on the disease, yet contagion particularly spreads it, and renders it more epidemic. Thus the Drake East-Indiaman continued free from the disorder for two weeks together, when she had no communication with the other ships; whereas, as soon as the disorder was brought on board, many were seized with it within a few days in such a manner as to leave no room to entertain the least doubt concerning its pestilential nature.

Dr. Lind of Haslar hospital has given a very curious and learned account of the appearance of this fever throughout the various parts of the globe. It was very common in England in the years 1765 and 1766, one obvious cause of which was the prevalence of the eastern wind. This wind in England is often said to bring with it a fog from the sea; but the truth of the matter is, that in many places of this island the east wind frequently raises a copious vapour from water, mud, and all marshy or damp places. To this exhaling quality of the eastern wind Dr. Lind has often been an eye-witness. When the wind changes to the east, the mud sometimes sends up a vapour as thick as smoke; and the doctor has observed two fish-ponds in his neighbourhood, one of fresh and the other of salt water, which on the approach of an easterly wind sometimes also emit a dense vapour, as from a pot of boiling water. In order to view this phenomenon distinctly, the person should stand at about 100 yards distance from the mud or ponds. If the sun shines when the wind changes to the east, he will observe a constant steam of vapours arising out of the ponds, from about five to ten yards in height, while the air about him remains serene. As the vapour or fog arising from other bodies glides along the surface of the earth, and is brought by the easterly wind to the ponds, he will still be able, for some time, to distinguish the vapours ascending perpendicularly out of the ponds from those which are carried in an horizontal direction by the wind; especially if the sun continues to shine, though faintly.

This evaporating quality of the east-wind seems to manifest itself also by its effects both on the thermometer and the human body; for a thermometer hung over a damp piece of ground during the fogs or exhalations arising from it, will often indicate a degree of cold below the freezing point. The chillness of the body, so sensibly perceived when in this situation, seems to proceed from the same cause, and to produce nearly the same sensations, which the damp arising from the wet floor in a chamber communicates to those who happen to be in it.

Winds are not constant in their effects. As we have some-

times warm weather with a north-wind, and sometimes very little heat with one blowing from the south; so the fogs attending an east-wind are not constant, neither is the evaporation above mentioned at all times to be perceived. It is possible, however, that in all this there may be a deception; and that instead of supposing the quantity of vapours exhaled to be increased by an easterly wind, the coldness of that wind may only condense and render visible the vapours in the air at that time. But even this supposition is liable to great objections, as our coldest north-winds seldom or never produce such an effect, but on the contrary are attended with dry and serene weather.

Be this as it will, however, an east-wind is usually accompanied with a cold, damp, and unwholesome vapour, which is observed to affect the health both of animals and vegetables, and in many places to produce obstinate intermitting fevers, and also to occasion frequent relapses. In particular spots of the low, damp island of Portsea, the ague frequently prevails during the autumnal season, and in some years is much more frequent and violent than in others. It is also observable, that this disease always attacks strangers, or those who have formerly lived on a drier soil, and in a more elevated situation, with greater severity than those who are natives of the island.

The year 1765 was remarkable, not only for the long continuance of the easterly winds, but for an excessive degree of heat, which produced a more violent and general rage of those diseases than had been known for many years before. In the month of August the quicksilver in Fahrenheit's thermometer often rose to 82° in the middle of the day. This considerable addition of heat, together with the want of refreshing rains, greatly spread the fever, increased its violence, and even changed its form in many places. At Portsmouth, and throughout almost the whole island of Portsea, an alarming continual or remitting fever raged, which extended itself as far as Chichester. At the same time, the town of Gosport, though distant only one mile from Portsmouth, enjoyed an almost total exemption from sickness of every kind; whereas in the neighbouring villages and farm-houses, a mild regular tertian ague distressed whole families. The violence of the fever, with its appearances in a continued, remitting, or intermitting form, marked in some measure the nature of the soil. In Portsmouth the symptoms were bad, worse at Kingston, and still more dangerous and violent at a place called *Half-way House*; a street so named, about half a mile from Portsmouth, where scarcely one in a family escaped this fever, which generally made its first attack with a delirium. In the large suburb of Portsmouth, called the *Common*, it seemed to rage with more violence than in the town, some parts excepted; but even whole streets of this suburb, together with the houses in the dock-yard, escaped its attack.

The marines, who were three times a-week exercised early in the morning on South-Sea beach, suffered much from the effect of the stagnant water in an adjoining morass. Half a dozen of them were frequently taken ill in their ranks when under arms; some being seized with such a giddiness of the head, that they could scarcely stand; while others fell down speechless, and upon recovering their senses complained of a violent head-ach. When such patients were received into the hospital, it was observed that some few had a regular ague, but that far the greater number laboured under a remitting fever, in which sometimes indeed there was no perceptible remission for several days. A constant pain and giddiness of the head were the most inseparable and distressing symptoms of this disease. Some were delirious, and a few vomited up a quantity of bile; but in all the countenance was yellow. A long continuance of the fever produced a dropsy or jaundice, or both. Even a slight attack reduced the most robust constitution to a state of extreme debility; and this weakness, together with the giddiness, continued for a long time after the fever. A scabby eruption now and then made its appearance on the lips and the corners of the mouth: but dry itchy spots over the whole body, resembling much the common itch, and seeming to partake of the nature of that disease, were more frequently observed in the patients at Portsmouth, where there was not the least reason to suspect any infection.

Such is the appearance of the remitting fever occasioned by marsh miasmata in England. In the Netherlands its symptoms are not much different. Dr. Lind informs us, that at Middleburg, the capital of West Zealand, a sickness generally reigns towards the latter end of August, or the beginning of September, which is always most violent after hot summers. It commences after the rains which fall in the end of July; the sooner it begins the longer it continues, and it is only checked by the coldness of the weather. Towards the end of August and the beginning of September it is a continual burning fever, attended with a vomiting of bile, which is called the *gall sickness*. This fever, after continuing three or four days, intermits, and assumes the form of a double tertian; leaving the patient in a fortnight, or perhaps sooner. Strangers that have been accustomed to breathe a dry pure air do not recover so quickly. Foreigners in indigent circumstances, such as the Scots and German soldiers, who are garrisoned in the adjacent places, are apt, after those fevers, to have a swelling in the legs and a dropsy; of which many die.

These diseases, the doctor observes, are the same with the double tertians common within the tropics. Such as are seized with the gall-sickness have at first some flushes of heat over the body, a loss of appetite, a white foul tongue, a yellow tinct in the eyes, and a pale colour in the lips. Such as live well, drink wine, and have

warm clothes and good lodgings, do not suffer so much during the sickly season as the poor people; however, these diseases are not infectious, and seldom prove mortal to the natives.

Sir John Pringle observes, that the prevailing epidemic of autumn in all marshy countries, is a fever of an intermitting nature, commonly of a tertian form, but of a bad kind; which, in the dampest places and worst seasons, appears as a double tertian, a remitting, or even an ardent fever. But however these fevers may vary in their appearance according to the constitution of the patient and other circumstances, they are all of a similar nature. For though, in the beginning of the epidemic, when the heat, or rather the putrefaction in the air, is the greatest, they assume a continued or a remitting form, yet by the end of autumn they usually terminate in regular intermittents.

In Zealand, where the air is more corrupted than in other parts of the Netherlands, this disease, as we have already observed, is called the *gall-sickness*; and indeed both the redundancy and depravation of the gall is sometimes so great, that it has been generally ascribed to the corruption and overflowing of that humour. But though it cannot with justice be said to originate from corrupted gall or bile, it is certain that the disease may be continued, and the symptoms aggravated, by an increased secretion and putrefaction of the bile occasioned by the fever. In proportion to the coolness of the season, to the height and dryness of the ground, this disease is milder, remits or intermits more freely, and removes further from the nature of a continued fever. The higher ranks of people in general are least liable to the diseases of the marshes; for such countries require dry houses, apartments raised above the ground, moderate exercise, without labour in the sun or evening damps, a just quantity of fermented liquors, plenty of vegetables, and fresh meats. Without such helps, not only strangers, but the natives themselves are sickly, especially after hot and close summers. The hardiest constitutions are very little excepted more than others: and hence the British in the Netherlands have always been subject to fevers.

By this disease the British troops were harassed throughout the whole of the war from 1743 to 1747. It appeared in the month of August 1743; the paroxysms came on in the evening, with great heat, thirst, a violent head-ach, and often a delirium. These symptoms lasted most of the night, but abated in the morning, with an imperfect sweat, sometimes with an hæmorrhagy of the nose or a looseness. The stomach from the beginning was disordered with a nausea and sense of oppression, frequently with a bilious and offensive vomiting. If evacuations were either neglected, or too sparingly used, the patient fell into a continued fever, and sometimes grew yellow, as in a jaundice. When the season was further advanced, this fever was attended with a cough, rheumatic

rains, and fizy blood. The officers being better accommodated than the common men, and the cavalry who had cloaks to keep them warm, were not so subject to it: and others who belonged to the army, but lay in quarters, were least of all affected; and the less in proportion to their being little exposed to heats, night-lamps, and the other fatigues of the service.

In this manner did the remitting fever infest the army for the remaining years of the war; and that exactly in proportion to their distance from the marshy places, of which we have several notable instances in Pringle's observations. In Hungary the same disease appears with still more violence, and is readily complicated with fevers of a truly pestilential nature, by which means it becomes extremely dangerous. Hungary is acknowledged to be the most sickly climate in Europe, and indeed as bad as any in the world. Here it was where the crusaders, in only marching through the country to invade Asia, often lost half their number by sickness; and where the Austrians not long since buried, in a few years, above 40,000 of their best troops, who fell a sacrifice to the malignant disposition of the Hungarian air. The reason of this uncommon malignity is, that Hungary abounds with rivers, which, by often overflowing, leave that low flat country overspread with lakes and ponds of stagnating water, and with large unwholesome marshes. So great is the impurity of these stagnated waters, that by them the rivers, even the Danube, whose course is slow, become in some places corrupted and offensive. The air is moist, and in summer quite sultry. In the nights of harvest, Kramer tells us, it was so very damp, that the Austrian soldiers could not secure themselves from the moisture even by a triple tent covering. Here epidemical distempers begin constantly to rage during the hottest months of the year; which are July, August, and September: and these complaints, according to the observations of the physician above mentioned, are the same with those which are epidemic upon the coast of Guinea, and in the sickly climates of the East and West Indies, of which, malignant fevers of the remitting and intermitting kind are the most common and dangerous.

The heat of the sun in Hungary, according to the same author, is more intense than in any other country of Europe; and in proportion to the heat is the pestilential quality of the marshy exhalations. It is constantly observed, that the nearer any city or fort is to a morass or a large river with foul and oozy banks, the more unhealthy are the inhabitants. At such seasons and places, the air swarms with numberless insects and animalcules, a sure sign of its malignant disposition; and the hotter the summer, the more frequent and mortal are the diseases. In short, this country, on account of its unhealthiness, has been termed *the grave of the Germans*; and in Italy, the Campania of Rome is almost equally

unhealthy. Lancisius, physician to Pope Clement XI. furnishes us with a very striking instance of the malignant quality of the air of Campania. Thirty gentlemen and ladies of the first rank in Rome having made an excursion, upon a party of pleasure, towards the mouth of the Tyber, the wind suddenly shifting, blew from the south over the putrid marshes, when twenty-nine were immediately seized with a tertian fever, only one escaping.

The island of Sardinia is annually visited with an epidemical sickness, which rages from June to September, and is called by the natives the *intemperies*. In some years there is a want of rain for four or five months; and then it is that this sickness exerts its utmost violence, being always more fatal in some places than in others, and in particular to strangers. Of this the British had a severe proof in 1758.—Admiral Broderick, in the Prince ship of war, anchored in the bay of Oristagni, where twenty-seven of his men, sent ashore on duty, were seized with the epidemical disease of this island; twelve of them in particular, who had slept on shore, were brought on board delirious. All of them in general laboured under a low fever, attended with great oppression at the breast and at the pit of the stomach, a constant reaching, and sometimes a vomiting of bile; upon which a delirium often ensued. These fevers changed into double tertians, and terminated in obstinate quartan agues. It is worthy of remark, that in this ship, which lay only two miles from the land, none were taken ill but such as had been on shore, of whom seven died. The prior of a convent, making a visit to the English officers, informed them, that the *intemperies* of the island was a remitting or intermitting fever, and that he himself had suffered several attacks of it. Sardinia was formerly so remarkable for its unwholesome air, that the Romans used to banish their criminals thither; and it is at present but thinly peopled, owing to the mortality occasioned by this annual sickness. For although it is about 140 miles long, and in several places 75 miles broad, yet it is computed that the whole number of its inhabitants does not exceed 250,000: an inconsiderable number, when compared with the inhabitants of the lesser, but comparatively more healthful island of Corsica; though even there the French lost a number of their troops by intermitting and remitting fevers. In the island of Minorca, too, Dr. Cleghorn informs us, that fevers of this kind prevail exceedingly; that their types are various, their symptoms violent, the intermissions fallacious, and that they frequently and suddenly prove fatal. It is more than probable, he adds, from the accounts of several physicians and travellers, that epidemical tertians are not wholly confined to the coasts and islands of the Mediterranean, but that they are equally frequent and destructive in many other parts of the globe; and perhaps may be deemed the anniversary autumnal distempers of most hot countries in the

world. And though in the mild climate of Britain, a tertian may always easily be cured when once it is discovered; yet in warm climates, such is the rapid progress of the disease, that it is necessary to know it in the very beginning, which is very difficult for those who have never seen any but the tertians usually met with in Britain.

From Dr. Cleghorn's account of Minorca, however, it doth not appear why that island should be so much infested with fevers of this kind, since it is far from being a marshy country; nay, on the contrary, is very dry. The south wind, he observes, is very unhealthy; and it is the prevalence of this wind which brings on the fever: but still the difficulty is not removed, because the sea-air is so far from bringing on such dangerous diseases, that it is one of the greatest preservatives against them when it can be had. As to the moisture which must necessarily accompany an insular situation, that cannot reasonably be admitted as a cause of this or any other disease. In the London Medical Observations we find a paper on a subject very similar to the present, namely, the mischiefs produced by lying in damp sheets, or being exposed to moist vapour. The author tells us, that he hardly knows a disease the origin of which hath not by some been ascribed to lying in a damp bed, or sitting in a wet room; and yet he does not know any one which will certainly be produced by these causes, and people frequently expose themselves to such causes without suffering any ill effects. "It must be owned indeed (says he), that the vapours arising from the bilgewater of ships tend to produce scurvy. The swampy plains also near the mouths of great rivers which are often overflowed, and low grounds which cannot readily be drained, and those tracts of land where the thickness and extent of the woods keep the ground moist and half putrid for want of ventilation, are destructive to the neighbouring inhabitants, by occasioning obstinate intermittents in the colder climates, and pestilential fevers in the hotter regions. But all this mischief arises not merely from moisture, but from an unventilated and putrid moisture; for the inoffensiveness of mere wetness, untainted with putridity, may be reasonably inferred from the following considerations. The air is often fully saturated with moisture, and could not be more filled by the vapours arising from a chamber covered with water; and yet neither is any epidemical distemper produced by it, nor are those remarkably aggravated with which the sick happen at that time to be afflicted. The air from rivers and from the sea is probably more replenished with vapours than inland countries cleared of their woods: yet the most celebrated of the ancient physicians recommended the bank of a running river for the situation of a house, on account of its peculiar healthfulness; and many invasions are

sent by the modern physicians to the sea side, only for the benefit of the sea air.

“ Where the sailors are cleanly, and not too much crowded, they are often as healthy during long voyages at sea, as they would have been upon any part of the land. Venice is not observed to be less healthy than London or Paris.

“ Those who are much disposed to sweat, lie many hours in bed-clothes impregnated probably with a less wholesome moisture than would have been left in the sheets half-dried after washing; and I have not yet had reason to think that any remarkable injury was done to the health by the continuance of such sweats almost every night for weeks, and for months, except what arose from the too great copiousness of this evacuation.

“ Children, and such as are troubled with the stone, and those who, from other infirmities or age, constantly wet their beds with their urine, do not appear to suffer in their health on this account.

“ It is a common practice, in some disorders, to go to bed with the legs or arms wrapped in linen cloths thoroughly soaked in Malvern water, so that the sheets will be in many places as wet as they can be; and I have known these patients and their bedfellows receive no harm from a continuance of this practice for many months. Nor can it be said that the Malvern water is more innocent than any other water might be, on account of any ingredients with which it is impregnated; for the Malvern water is purer than that of any other spring in England which I ever examined or heard of.

“ The greatest valetudinarians do not scruple to sprinkle lavender water upon their sheets; and yet, when the spirit is flown off, there is left what is as truly water as if it had been taken from the river.

“ Is it observed that laundresses are peculiarly unhealthy above other women, though they live half their time in the midst of wet linen, in an air fully saturated with vapours? Many other employments might be mentioned, the persons occupied in which are constantly exposed to wet floors or pavements, or to be surrounded with watery vapours, or to have their clothes often wet for many hours together.

“ Is it the coldness of wet linen which is to be feared? But shirts and sheets, colder than any unfrozen water can be, are safely worn and lain in by many persons, who, during a hard frost, neither warm their shirts nor their sheets.—Or does the danger lie in the dampness? But then how comes it to pass, that a warm or cold bath, and long-continued fomentations, can be used, without the destruction of those who use them? Or is it from both together? Yet we have long heard of the thickness

and continuance of the cold fogs in the seas north-west of England, but have never yet been told of any certain ill effect which they have upon those that live in these countries."

With regard to the causes of fevers, however, Dr. Lind is of opinion, that noxious vapours arising from the earth are for the most part to be blamed. Even in countries seemingly dry, and where violent rains are not frequent, he thinks that the air may load itself with putrid exhalations from the ground; and that, except in the burning deserts of Arabia or Africa, people are nowhere exempt from diseases occasioned by putrid moisture. In most of the hot countries, however, the pernicious effects of the putrid vapours are by no means equivocal. In Guinea, they seem to be more extraordinary than any-where else in the world; neither indeed can it be supposed, that a hot and moist atmosphere can be without putrescency. It may in general be remarked, that in sultry climates, or during hot weather, in all places subject to great rains, where the country is not cleared and cultivated, but is over-run with thickets, shrubs, or woods, especially if there are marshes or stagnating waters in the neighbourhood, sickness may be dreaded, and particularly the remitting fever of which we now treat. The fens, even in different counties of England, are known to be very prejudicial to the health of those who live near them, and still more so to strangers; but the woody and marshy lands in hot countries are much more pernicious to the health of Europeans. In all those unhealthy places, particularly during fogs or rains, a raw vapour, disagreeable to the smell, arises from the earth, and especially in the huts or houses. But of all the vapours which infest the torrid zone, the most malignant and fatal are the *harmattans*: they are said to arrive from the conflux of several rivers in the king of *Dormo's* dominions at Benin (the most unwholesome part of Guinea), where travellers are obliged to be carried on men's backs for several days' journey, through swampy grounds, and over marshes, amidst stinking ooze, and thickets of mangrove trees which are annually overflowed. These vapours come up the coast to a surprising distance, with the south-east and north-east winds: and it has been observed, that in their progress they have often changed both the course of the winds and of the sea currents. The times of their appearance at Cape Coast are the months of December, January, or February. The north-east and south-east winds are always unhealthy, but particularly so during the harmattan season. Some years this vapour is scarcely perceptible; but in others it is thick, noxious, and destructive to the blacks as well as whites. The mortality is in proportion to the density and duration of the fog. It has a raw putrid smell; and is sometimes so thick, that a person or house cannot be discerned through it, at the distance of fifteen or twenty yards: and it continues so for ten or fourteen days; during which

it opens the seams of ships, splits or opens the crevices of wood as if shrunk or dried with a great fire, and destroys both man and beast. In the year 1754 or 1755, the mortality occasioned in Guinea by this stinking fog was so great, that in several negro towns the living were scarce sufficient to bury the dead. Twenty women brought over from Holland to the *Castle del Mina*, perished, together with most of the men in the garrison. The gates of Cape Coast castle were shut up for want of centinels to do duty; the blacks dying at this time as well as the white people. It is lucky that it is only in some years that *harmattans* are so very thick and noxious, otherwise that part of the country would be depopulated. It is observed that all fogs are extremely unhealthy in those parts, particularly before and after the rainy seasons; but the above account of the *harmattans* appeared so very extraordinary and incredible to some of Dr. Lind's readers, that he thought proper to publish a further corroboration of the facts above mentioned.

“A gentleman (says he), who had long resided at Cape Coast castle, informed me, that during the time of this fog, being in the upper chambers of the fort, the boards of the floor shrunk so much, that he could discern the candles burning in the apartments below him (there are no plaster ceilings used in those hot countries), and that he could then even distinguish what people were doing in the apartments below; the seams of the floor having opened above half an inch, while the fog lasted, which afterwards, upon its being dispelled, became close and tight as before.”

In this country the rains and dews seem to be possessed of qualities almost equally pernicious with the fogs. This much is certain, that in Guinea, many of the principal negroes, and especially of the mulatto Portuguese, take the utmost precaution to avoid being wet with those rains, especially such as fall first. At the setting-in of the rainy season, they generally shut themselves up in a close well-thatched hut, where they keep a constant fire, smoke tobacco, and drink brandy, as preservatives against the noxious quality of the air at that time. When wet by accident with the rain, they immediately plunge themselves into hot water, if near it. Those natives generally bathe once a-day, but never in the fresh water rivers when they are overflown with the rains: at such times they prefer for that purpose the water of springs. The first rains which fall in Guinea are commonly supposed to be the most unhealthy. They have been known, in 48 hours, to render the leather of the shoes quite mouldy and rotten; they stain clothes more than any other rain; and soon after their commencement, even places formerly dry and parched swarm with frogs. At this time skins, part of the traffic of Senegal, quickly generate large worms; and it is remarked, that the fowls, which greedily prey on other insects, refuse to feed on these. It has been further

observed, that woollen cloths wet in those rains, and afterwards hung up to dry in the sun, have sometimes become full of maggots in a few hours.—It is also probable, that as, in some of those countries, the earth, for six or eight months of the year, receives no moisture from the heavens but what falls in dews; which every night renew the vegetation, the surface of the ground in many places becomes hard and incrustated with a dry scurf, which confines the vapours below; until, by the continuance of the rains for some time, this crust is softened and the long pent-up vapours set free. That these dews do not penetrate deep into the earth is evident from the constant dryness and hardness of such spots of ground, in those countries, as are not covered with grass and other vegetables. Thus the large rivers in the dry season being confined within narrow bounds, leave a great part of their channel uncovered, which having its moisture totally exhaled, becomes a solid hard crust; but no sooner do the rains fall, than by degrees this long parched up crust of earth and clay gradually softens, and the ground, which before had not the least smell, begins to emit a stench, which in four or five weeks becomes exceedingly noisome, at which time the sickness is generally most violent.

This sickness, however, is not different from the remitting fever which has been described under so many various forms and names. An inflammatory fever is seldom observed, during the season of sickness, in this part of the world; and we shall conclude our description of the *amphimerina paludosa* with some extracts from the surgeon's journal of a ship that sailed up the rivers of Guinea.

“On the 5th of April we sailed up the river of Gambia, and found all the English in the fort in perfect health. The surgeons of the factory informed me, that a relaxation of the stomach, and consequently a weakened digestion, seemed to bring on most of the diseases so fatal to Europeans in the sickly season. They were generally of a bilious nature, attended with a low fever, sometimes of a malignant, at other times of a remitting kind.—On the 12th of April, after sailing 30 miles up the river St. Domingo, we came to Catchou, a town belonging to the Portuguese, in Lat. 20° N. In this town were only four white people; the governor and three friars. The number of whites in the trading ships were 51. One morning, towards the latter end of April, a little rain fell. On the 13th of May there was a second shower, accompanied with a tornado. On the 18th of May it rained the whole day; and the rain continued, with but short intervals, until the beginning of October.

“In the month of June, almost two-thirds of the white people were taken ill. Their sickness could not be well characterised by any denomination commonly applied to fevers: it however approached nearest to what is called a *nervous fever*, as the pulse was

always low, and the brain and nerves seemed principally affected. It had also a tendency to frequent remissions. It began sometimes with a vomiting, but oftener with a delirium. Its attack was commonly in the night; and the patients, being then delirious, were apt to run into the open air. I observed them frequently recover their senses for a short time, by means of the heavy rain which fell upon their naked bodies. But the delirium soon returned: they afterwards became comatose, their pulse sunk, and a train of nervous symptoms followed; their skin often became yellow; bilious vomitings and stools were frequent symptoms. The fever reduced the patient's strength so much, that it was generally six weeks or two months before he was able to walk abroad. A consuming flux, a jaundice, a dropsy, or obstructions in the bowels, were the consequences of it. Of fifty-one white men, being the companies of four ships which were at Catchou, one-third died of the fever, and one-third more of the flux, and other diseases consequent upon it; and of these not one was taken ill till the rains began.

"I believe, on the whole face of the earth, there is scarce to be found a more unhealthy country than this during the rainy season; and the idea I then conceived of our white people was by making a comparison of their breathing such a noxious air, with a number of river-fish put into stagnating water; where as the water corrupts, the fish grow less lively, they droop, pine away, and many die.

"Thus some persons became dull, inactive, or slightly delirious, at intervals; and without being so much as confined to their beds, they expired in that delirious and comatose state in less than forty-eight hours, after being in apparent good health. The white people in general became yellow; their stomachs could not receive much food without loathing and retchings. Indeed it is no wonder that this sickness proved so fatal, that recoveries from it were so tedious, and that they were attended with fluxes, dropsies, the jaundice, ague-cakes, and other dangerous chronical disorders. It seemed more wonderful to me that any white people ever recover, while they continue to breathe so pestiferous an air as that at Catchou during the rainy season. We were, as I have already observed, thirty miles from the sea, in a country altogether uncultivated, overflowed with water, surrounded with thick impenetrable woods, and over-run with slime. The air was vitiated, noisome, and thick; insomuch that the lighted torches or candle burnt dim, and seemed ready to be extinguished: even the human voice lost its natural tone. The smell of the ground and of the houses was raw and offensive; but the vapour arising from putrid water in the ditches was much worse. All this, however, seemed tolerable, when compared with the infinite numbers of insects swarming every-

where, both on the ground and in the air; which, as they seemed to be produced and cherished by the putrefaction of the atmosphere, so they contributed greatly to increase its impurity. The wild bees from the woods, together with millions of ants, over-ran and destroyed the furniture of the houses; at the same time, swarms of cockroaches often darkened the air, and extinguished even candles in their flight; but the greatest plague was the musquettos and sand-flies, whose incessant buz and painful stings were more insupportable than any symptom of the fever. Besides all these, an incredible number of frogs on the banks of the river made such a constant and disagreeable croaking, that nothing but being accustomed to such an hideous noise could permit the enjoyment of natural sleep. In the beginning of October, as the rains abated, the weather became very hot; the woods were covered with abundance of dead frogs, and other vermin, left by the recess of the river; all the mangroves and shrubs were likewise overpread with stinking slime."

After so particular a description of the remitting fever, in many different parts of the world, we presume it will be needless to take notice of any little varieties which may occur in the warm parts of America, as both the nature and cure of the disease are radically the same: neither shall we lengthen out this subject with further descriptions of remitting fevers from the works of foreign authors, as, from what we have already said, their nature cannot well be mistaken.

Cure.] The great difficulty in the cure of remitting fevers arises from their not being simple diseases, but a complication of several others. Fevers, properly speaking, have but three or four different appearances which they can assume without a complication. One is, when they are attended with a phlogistic diathesis; another is, when they assume the form of genuine intermittents; a third is, when they produce a great debility of the nervous system; and the fourth is, when along with this debility there is also a rapid tendency to putrefaction. If, therefore, all these species happen to make an attack at once, the most dangerous fever we can imagine will be produced; and however contrary it may be to our theories to admit the possibility of such an attack, the truth of the fact is too often confirmed by fatal experience. In the beginning of remittent fevers, for instance, the symptoms indicate a high degree of inflammation: but if the practitioner attempts to remove this inflammation by blood-letting or other evacuations, the pulse sinks irrecoverably, and the person dies with such symptoms as show that the nervous system has been from the beginning greatly affected; at the same time the high stimulants and cordials, or the bark, which would have conquered the nervous part of the disease, increase the inflammatory part of it to such a degree, that by a too early exhibition of them the patient also dies, but after another manner.

In the remitting fever of the East Indies, Dr. Lind of Windsor

formed the following indications of cure: 1. To allay the violence of the fever. 2. To evacuate the putrid humours, and take great care to prevent the body from inclining to putrefaction. 3. To keep up the strength of the patient as much as possible during the disorder. 4. To lose no time in preventing the return of the paroxysms.

To allay the violence of the fever, every thing that can contribute to increase it ought to be carefully avoided or removed; such as great heat, too strong a light falling on the eyes, noise, and motion. If during the paroxysm the head and loins be affected with violent pains, the pulse be full and hard, and the heat intense, bleeding may be used, but with the greatest caution: for, however useful this operation may be in cold climates, the success of it in warm ones is so far from being certain, that the lives of the patients have been often very much endangered, nay even destroyed by it. Dr. Badenoch, and the surgeon of the Ponsborne, endeavoured each of them to relieve two patients by blood-letting: and the consequence was, that each of them lost one patient. Dr. Lind bled two patients; one of whom was Mr. Richardson, the first mate of the ship, who complained of a most violent pain in his head, with a full hard pulse. About four or five ounces of blood were taken from him, by which he was greatly relieved: nor was the cure retarded by it; nay, the fever afterwards became less irregular. At the time the other patient was bled, the disease was exceedingly frequent and violent. He was so earnest for bleeding, that he fired all the rest with the same desire, swearing, that by refusing them this only remedy, every one of them would be sent to their graves. To quiet them, therefore, and get quit of their importunities, the doctor complied with their request, and took about five or six ounces from him who had been the first to require it. The consequence was, that he immediately lost his strength; and in less than an hour, during which time he made his will, was carried off by the next fit. It is necessary, however, to observe, and indeed, the doctor himself makes the observation, with regard to this patient, that he was bled at an improper time, namely, between the fits; whereas, had he been bled in the hot fit, it is possible he might have been relieved.

In support of the advantages to be derived from bleeding under proper circumstances, we have the authority both of Cleghorn and Pringle. As Dr. Cleghorn practised in a very hot country, his observations must in the present case have greater weight than those of Pringle, who practised in a colder one. The former acquaints us, that if he was called in early enough, unless there was a strong contra-indication, he always used to take away some blood from people of all ages; namely from robust adults, ten or twelve ounces; from others a smaller quantity, in proportion to their strength and years. And further, if a violent head-ach, obstinate delirium, and great heat or pains of the bowels, were urgent, the bleeding was

repeated within a day or two. By this seasonable evacuation, he found the vehemence of all the paroxysms somewhat diminished: the apyrexies became more complete; the operation of emetics and cathartics rendered safer and more successful; and the terrible symptoms which happened about the height of the distemper, such as raving, *sepor*, difficulty of breathing, inflammations of the abdominal viscera, &c. were either prevented or mitigated. But if the fever had continued for some time before he was called, and the mass of blood appeared to be too much melted down or inclined to a putrid dissolution, he either abstained from bleeding entirely, or took away a very small quantity, though some importunate symptoms might seem to require a larger evacuation. As to the time of performing the operation, he acquaints us, that it is safe enough, except when the cold fit lasts or is soon expected, or while the skin is covered with critical sweats; and that he usually opened a vein in the beginning of the hot fit; by which means the sick were relieved, the immoderate heat of the body, which is often productive of fatal effects, was diminished, and the critical sweats brought on sooner and in greater abundance.

But though Dr. Lind found venesection to be of such pernicious tendency in his patients, cooling acidulated liquors were of the utmost service, as they corrected the putrid humours, lessened the heat and thirst, and of course prevented the fever from arriving at so great an height as it would otherwise have done. Those cooling liquors are the best which are made up with some farinaceous substance, as they most easily unite with our fluids. Fossile acids too, and crystals of tartar, especially the latter, are of considerable use, not only in this but in other fevers. The neutral salts, prepared with the juice of lemons, were likewise given with success during the heat of the fever. They lessen the nausea, the fits become more regular, and the remissions more full; and they are particularly grateful when given in a state of effervescence. The good effects of these draughts we are in a great measure to ascribe to the antiseptic quality of the fixed air extricated from them during the effervescence; of which we shall speak more fully when treating of the typhous fever.

During the remission, it is proper to evacuate the putrid humours by small doses of ipe acuanha, or rather tartar emetic (vide Formulæ, No. 1. and 2.) The latter indeed appears to be endowed with some kind of febrifuge virtue, which Dr. Cullen thinks is owing to its relaxing the febrile spasm taking place in the capillary vessels. But should there appear symptoms of a topical inflammation in any of the abdominal viscera, a thing which never happens unless the disorder has been of some standing, vomiting is to be avoided, and we are to depend upon purgatives alone for the putrid bile, which is always useful in the cure of this disorder. But all acrid and strong purgatives are to be carefully avoided, and only the mild

antiseptic ones made use of, such as crystals of tartar, tamarinds made up with manna, or the following used at many of the London hospitals :

(No. 19.) ℞ Inf. fennæ ℥ij.

Magnes. vitr. ℥ss.

Syr. rosæ. ℥ij. M. f. Haust.

Dr. Percival has described the good effect which vegetable acids have in sweetening putrid bile; whence it seems probable, that a liberal use of these acids would be much more serviceable than a repetition of any kind of purgatives. Though in these diseases there is a great quantity of putrescent bile collected in the body, yet it seems much more probable that this is the *effect* rather than the *cause* of the disorder; and therefore, though we carry off the quantity collected ever so often, more of the same kind will still be produced by the putrescent disposition of the other fluids, at the same time that the strength of the patient must necessarily be diminished by repeated evacuations, when it ought rather to be kept up by all possible means. We ought well to observe, however, that the mineral acids have not that property of sweetening putrid bile which the vegetable ones have; and therefore the same relief will not be given by them which might reasonably be expected from vinegar or lemon-juice.

In order to keep up the strength of the patient, good food is absolutely necessary. Dr. Lind allowed the sick small messes of panna made with boiled rice and barley mixed with currants or raisins and prunes, seasoned with sugar and a little wine, especially claret. During the paroxysms, they had gruel made of flour and rice, with sugar and the juice of acid fruit; and when the fit went off, a little wine was added to this mixture.

The shirts and bedding must be very often changed and well aired; their stools, and all filth and nastiness, are to be immediately removed; the places where they are lodged should be well aired and frequently sprinkled with vinegar; and, in the last place, the sick must be exceedingly well nursed. Blisters, according to Dr. Lind, should never be used till the fever has been of long continuance, or the spirits and pulse of the patient have begun to flag. But here our author has implicitly followed Dr. Huxham, whose theory concerning the use of blisters is now found to be erroneous. According to that celebrated author, blisters are capable of doing considerable hurt in all cases where there is a tendency to inflammation, by increasing the motion of the fluids and the oscillatory power of the vessels, both of which are already too great. They are also improper, according to him, where there is a considerable tendency of the fluids to putrefaction; because he supposes the salts of these flies to operate in the same manner with volatile alkalis, that is, by dissolving and putrefying the blood still farther. But Sir John Pringle has shown, that, in inflammatory fevers, as well

as those of the putrid kind, both blisters and volatile salts may be of service; the latter, particularly, he hath experimentally proved to be so far from promoting putrefaction, that they are exceedingly strong antiseptics.

In the East Indies, Dr. Lind found it absolutely necessary to exhibit the bark in large quantities, and as early as possible. By this method he not only secured the patient from the imminent danger of death to which he was exposed at every fit, but likewise conquered those obstructions which were apt to ensue in the abdominal viscera, and which are to be attributed to the continuance of the disorder, and not to the bark employed to cure it. He always gave the bark during the second remission, as all his care was during the first to cleanse the primæ viæ. He observes, however, that it is to no purpose to give the bark till the necessary purgations are over; but assures us, that it never fails, unless from the coming on of a vomiting or diarrhœa it cannot be taken in sufficient quantities before the return of a paroxysm. To prevent the medicine from vomiting or purging, he mixed a few drops of tincture of opium with every dose of it. Half a drachm was given every half hour in some convenient vehicle, beginning as soon as the fever had considerably abated, and the pulse was returned nearly to its natural state; both which generally happened before the sweats were over. An ounce of the bark was sometimes found too little to check the fever, but an ounce and a half never failed. It must be continued daily in small doses till the patient has recovered strength, and then a greater quantity must be given, especially at the season when the rivers overflow the country.

Dr. Pringle found the autumnal remittents in the Netherlands complicated with a great many inflammatory symptoms; for which reason it was generally found necessary to open a vein in the beginning. The vernal and later autumnal remitting fevers are accompanied with pleuritic and rheumatic pains from the coldness of the weather, and on that account require more bleeding. A physician unacquainted with the nature of the disease, and attending chiefly to the paroxysms and remissions, would be apt to omit this evacuation entirely, and give the bark too soon, which would bring on a continued inflammatory fever. In these countries a vein may be safely opened either during the remission or in the height of a paroxysm; and our author also found good effects resulting from bleeding in the hot fits of the marsh fever, even after it had almost come to regular intermissions. After bleeding, a purgative was usually exhibited, of which he gives us the following formula.

(No. 20.) ℞ Infusi sennæ fol. ℥iij.

Elect. sennæ ℥ss.

Nitr. pur. ℥i.

Tinct. sen. ℥vi. M. f. Haust.

Of this only one half was taken at once; and if it did not ope-

rate twice in four hours, the remainder was then taken. This position agreed with the stomach, purged plentifully, and therefore was a very useful composition. Next morning, when there was almost always some remission, he gave one grain of emetic tartar rubbed with 12 grains of crabs-eyes, and repeated the dose in two hours, if the first had little or no effect; or at any rate in four hours. This medicine was intended not only to vomit, but also to operate by stool, and excite a sweat. If these evacuations were procured, the fever generally became easier, and was even sometimes cured. This he prefers to the ipecacuanha; and therefore in the latter years of his practice disused that root entirely. The same medicine was repeated next day or the day following; or if not, a laxative clyster was thrown in: and this method was continued till the fever either went off altogether, or intermitted in such a manner as to be cured by the bark.

A similar method was followed by Dr. Huck in the remitting fevers of the West Indies and North America. In the beginning he let blood; and in the first remission gave four or five grains of ipecacuanha, with from half a grain to two grains of emetic tartar. This powder he repeated in two hours, taking care that the patient should not drink before the second dose; for then the medicine more readily passed into the bowels after it had operated by vomiting. If after two hours more the operation either way was small, he gave a third dose, which commonly had a good effect in opening the first passages; and then the fever either went quite off, or intermitted in such a manner as to yield to the bark. On the continent he found little difficulty after the first intermission; but in the West Indies, unless he gave the bark upon the very first intermission, though imperfect, the fever was apt to assume a continued and dangerous form.

In the remitting fevers of hot countries, however, it must be observed, that the lancet must in all cases be much more sparingly used than in similar diseases of the colder regions; and we must also be sparing of venesection in those countries where the malarial effluvia are very strong and prevail much. For this reason Dr. Lind of Haflar greatly condemns the practice of indiscriminate bleeding when people first arrive in hot climates. The first diseases indeed which occur in a voyage to the southward are for the most part of an inflammatory nature, and owing to a sudden transition from cold to hot weather. This occasions a fullness and distension of the vessels; whence all Europeans on their first arrival under the tropic, bear evacuations much better than afterwards. The practice of indiscriminately bleeding, however, a number of the ship's company when they first come into a warm latitude, is by no means found to answer the purpose of a preventive. In such cases, indeed, as plainly indicate a plethoric disposition brought on by the heat, blood-letting is certainly useful. The signs of this are a pain and giddiness in the head; a heaviness and dulness of the

eyes, which sometimes appear slightly inflamed : there is also commonly a sense of weight and fulness in the breast, the pulse at the same time being quick and oppressed.

But the case is quite different after a longer continuance of sultry weather, and when the constitution is in some measure habituated to the hot climate. For it is then observed, that the symptoms of inflammation in the bowels, even the most dangerous, are not near so severe in such climates as in cold countries ; nor can the patients bear such large evacuations. The physician, however, must take care not to be misled by the apparent mildness of the symptoms : for he will find, notwithstanding such deceitful appearances, that the inflammation makes a more rapid progress in hot countries than in cold, suppurations and mortifications being much more suddenly formed ; and that in general all acute diseases come sooner to a crisis in the southern than in colder regions. Hence it is an important rule of practice in those climates, to seize the most early opportunity, in the commencement of all threatening inflammations, to make frequent, though not copious, evacuations by blood-letting. For by delay the inflammation quickly passes from its first to its last or fatal stage ; at least an imperfect crisis in such inflammatory fevers ensues, which fixes an obstruction in the viscera extremely difficult to remove.

It is indeed a general maxim with some physicians in the West Indies, that in most acute diseases bleeding in that country is prejudicial. This is founded upon a supposition that the crassamentum of the blood is thinned, and the solids greatly weakened, by the heat of the climate. It is therefore objected, that bleeding in such an habit of body weakens the powers of nature, and withdraws the strength which is requisite to support the patient until the crisis of the fever.

This reasoning is partly just ; but, like all general maxims, will admit of exceptions. First with regard to sailors, it is to be remembered, that they are more exposed to quick vicissitudes of heat, cold, damps, and to various changes of the air and weather, than most of the other inhabitants of the Torrid Zone. Add to this, that their intemperance, and the excesses they are apt to fall into whenever it is in their power to commit them, render them more liable to inflammations than any other set of people. Hence their diseases require more plentiful evacuations than the land-inhabitants of those parts of the world, and generally they bear them better. But with regard to the natives of the country, or those who have remained long there, it must be proper to bleed them very sparingly, making a small allowance for the different seasons of the year, the temperature of the air, and the situation of the places where they reside. Thus, in some parts, even on the island of Jamaica, at particular seasons, the weather is cool ; wherefore, in these places, and at such seasons, the inhabitants having

their fibres more rigid, and a firmer crasis of their blood, bear venesection much better.

In cold countries the state of the air greatly assists in restoring the impaired spring of the fibres; whereas every thing almost in warm weather, such as heat, moisture, &c. concur to relax and weaken the habit of body. Thus we may daily see persons in Britain, after having suffered a most severe fit of sickness, recover their strength and spirits in a few days, and in a very short time their natural constitution. But the case is very different in the sultry regions of the torrid zone, or indeed in any part of the world where the heat of the season causes the mercury to stand for any length of time at the 77th degree and upward of Fahrenheit's thermometer. During such an excess of heat, debility after fevers is apt to remain with European constitutions for several months. In Jamaica the convalescents are sent to the cool summits of the mountains; but a retreat to a more northern climate is often absolutely necessary to recover their wonted tone and vigour of body. It is a well-established observation, that the negroes and aborigines of the torrid zone cannot bear plentiful evacuations by the lancet. They commonly mix the most stimulating poignant spices with their ordinary light food, and this is found by experience suitable to their constitutions.

As proper preventives for the dangerous fevers of which we are treating, Dr. Lind on all occasions recommends the avoiding of stagnant water, or putrid marshes; the use of proper food, cleanliness, and sobriety. Of the propriety of removing from the neighbourhood of those places whose pestilential effluvia produce the disorders, we cannot possibly entertain a doubt; and of the efficacy of proper food in preventing putrid disorders he gives a remarkable instance in the Sheerness man-of-war, bound to the East Indies. As they went out, the men being apprehensive of sickness in so long a voyage, petitioned the captain not to oblige them to take up their salt provisions, but rather to permit them to live upon the other species of their allowance. It was therefore ordered, that they should be served with salt-meat only once a-week; and the consequence was, that, after a passage of five months and one day, the ship arrived at the Cape of Good Hope without having a single person sick on board. As the use of Sutton's pipes had been then newly introduced into the king's ships, the captain was willing to ascribe part of such an uncommon healthfulness to their beneficial effects; but it was soon discovered, that by the neglect of the carpenter, the cock of the pipes had been all this while kept shut. She remained in India some months, where none of the men, except the boat's crew, had the benefit of going on shore; notwithstanding which, the crew continued to enjoy the most perfect state of health; they were, however, well supplied with fresh meat. On leaving India, knowing they were to stop at the Cape

of Good Hope, and trusting to a quick passage, and the abundance of refreshments to be had there, they eat their full allowance of salt-meats, during a passage of only ten weeks; and it is to be remarked the air pipes were now open. The effect of this was, that when they were at the Cape, twenty of them were afflicted in a most miserable manner with scorbutic and other disorders. These, however, were speedily recovered by the refreshments they met with on shore. Being now thoroughly sensible of the beneficial effects of eating, in these southern climates, as little salt meat as possible when at sea, they unanimously agreed, in their voyage home from the Cape, to refrain from their too plentiful allowance of salt flesh. And thus the Sheerneys arrived at Spithead, with her full complement of 160 men in perfect health, and with unbroken constitutions; having in this voyage of 14 months and 15 days buried but one man, who died in a mercurial salivation.

Thus we see that a free and pure air is not a sufficient preservative against a putrescent state of the fluids, without proper food; and, on the other hand, we have a remarkable instance of the inefficacy of the most salutary food to prevent putrid diseases in a very noxious state of the atmosphere. In the year 1717, at the siege of Belgrade, in Hungary, the fever of the country, and the flux, occasioned a most extraordinary mortality among the troops. The dread of these diseases caused every one, as may naturally be supposed, to have recourse to different precautions for self-preservation. Prince Eugene, the commander in chief, had water and the provision for his table sent him twice a-week from Vienna. The pure stream of the river Kahlenberg was regularly brought to him: he avoided all excesses, and lived regularly, or rather abstemiously; refreshed himself often by eating a cool melon; and mixed his usual wine, which was Burgundy, with water. Yet notwithstanding his utmost care, he was seized with a dysentery; which would have quickly put an end to his life, had not the speedy conclusion of that campaign permitted him to make a quick retreat.

At this unhealthy season, when hardly one imperial officer, much less their several domestics, escaped those malignant diseases, the renowned Count Boneval and his numerous retinue continued in perfect health, to the surprise, or, to use the words of Dr. Kramer, to the *envy*, of all who beheld him. The only preventive he used to take, was, two or three times a-day, a small quantity of brandy in which the bark was infused; and he obliged all his attendants and domestics to follow his example. It is no less remarkable that the count, placing his certain preservation in the use of this single medicine, lived for many years afterwards in the most unhealthy spots of Hungary, without any attack or apprehension of disease; and continued to enjoy a perfect state of

health during the hottest and most sickly seasons. And thus, with an unbroken and sound constitution, which is seldom the case of those who reside long in such climates, he lived to a great age. There is an instance produced by the same author of a whole regiment in Italy having been preserved by the use of the bark from the attack of these malignant diseases, viz. the flux, and the *bilious* fever as it is frequently called, when the rest of the Austrian army, not pursuing that method, became greatly annoyed with them.

The intemperance and irregular living of those Europeans who visit the hot climates is frequently accused as the cause of their destruction; but, our author thinks, without sufficient reason: for though intemperance will make the body more liable to receive such diseases, it will not bring them on. It must by no means, however, be imagined, that in these climates Europeans may with impunity be guilty of excesses in eating or drinking; for the least error in that way will often prove fatal by debilitating the body, whose utmost strength in time of full health was perhaps scarce sufficient to resist the pestilential miasmata of the atmosphere.

It appears, therefore, from the concurrent testimony of the most eminent physicians, that the most proper medicine to be used, either as a preventive or cure, for remitting or intermitting disorders, is the Peruvian bark, administered with proper precautions, and after the *primæ viæ* have been evacuated of the putrid bilious matter collected in them. In those species of *tritæophya*, &c. belonging to this class, enumerated by Sauvages, the same remedies alone were useful; but in that pestilential distemper which he calls *Tritæophya Vratislaviensis*, he tells us that washing the body with water sometimes hot, sometimes cold, watery clysters, and plenty of aqueous drink, were likewise of use.

We shall conclude this subject with some observations made by Dr. Fowle, in his Treatise on Fevers in the West Indies.

Dr. Fowle divides the fevers of the West Indies into intermittents, remittents, ardent fever, and the malignant or gaol fever. On the diagnostic symptoms of these varieties of fever, he assists the reader by bringing together what has been dispersed in his former chapters concerning the different situations, seasons of the year, and predispositions, which conduce to the production of the various fevers.

“We may observe,” says he, “that the ardent fever requires a certain degree of firmness of fibre: it reigns most commonly at that period of the year when the sky is clear; when the atmosphere seems little, if at all, loaded with vapour; and when the heat is great. The objects of its attack are the stout and athletic, young or middle aged men, or women who in their constitutions and habits nearly resemble them, and those who have lately arrived either from Europe or North America, or from the more moun-

tainous situations in the West Indies themselves. It is prevalent in the dry sandy bays, and is often induced by persons who have been much heated being suddenly exposed to cold.

“The remitting fever, on the contrary, seems to require a previously debilitated body: it is most frequent at those periods of the year, when, the ground having been supersaturated by the rains, the whole atmosphere becomes loaded with noxious vapour. Persons who have lived for some time in the West Indies are by no means free from its power, and women and children suffer severely from it, as do also those who have been debilitated by previous illness or long-continued fatigue. It delights in the low swampy marshes, in the neighbourhood of lagoons, in uncultivated situations, where the currents of air are impeded, and on the smaller hills which are subject alternately to the swampy vapours, and the cold storms.

“The gael fever is seldom to be met with except on board of ships or in crowded towns, or in individuals who have been exposed to the contagion of such places.

“This recapitulation may lead us to a very important point of practice; it may teach us to be very minute in our enquiries into the former manner of living of our patient, and also into his previous residence and other circumstances: for it must appear to be the height of imprudence to bleed a man profusely, and to have recourse to other violent evacuations, to a very great extent, though he should be young, in appearance robust, and attacked in a dry hot situation, when we might find, by a more minute enquiry, that this man has, for weeks previous to his illness, been undergoing immense fatigue, in situations too the most exposed to swampy vapours, and perhaps with but spare diet and little sleep. Nor is this supposing a case merely for the sake of illustration; the thing itself is continually occurring. Small detachments from regiments are frequently sent not only from one part of an island to another, but also to different islands; soldiers thus detached are very apt to be seized with fevers, not only from change of air, which I have before asserted to be a very frequent exciting cause, but also from having greater opportunities of obtaining spirits. The danger of following this evacuating plan in one who has been exposed to the influence of contagion must be still more evident.

“On the contrary, where the patient happens to be attacked soon after he comes into the neighbourhood of swampy soils, not having before been exposed to any debilitating causes, we surely may be more free in our evacuations, than in a more weakened person, or one who had been a longer resident.

“We may observe that the mode of attack differs considerably in the three fevers. While the gael fever is commonly preceded, for some hours, often for a day or two, by languors and

transient alternations of chills and flushes, and the remitting has a *rigor*, generally strong but always sufficiently evident, the ardent fever commonly makes its attack of a sudden, and with little or no *rigor*, and the patient, from being in apparent sound health, is hurried instantly into the midst of disease. The prostration of strength also, though very great both in the remitting and typhus, yet bears no proportion to that in the ardent: the pain in the head, back, and limbs, is considerable in all, but in the ardent there is most commonly a violent pain in the middle of the thighs. The pain also of the head is different in the various fevers: in the ardent, it is principally fixed over the orbit of each eye, while there is only a dull heavy pain over the rest of the head; in the remitting, the pain is violent and continued over the whole head; while in the gaol fever it seems rather to be a succession of pulsations, giving an idea to the patient that his head is forcibly opening and shutting. There is little vomiting, except just in the early attack of gaol fever; but in both the others, it is a troublesome and dangerous symptom: in the remitting, there is generally a quantity of bile thrown up, frequently of a green colour, but this seldom or never happens in the ardent. So constantly indeed is this the case, that where bile is vomited up, and there has been sensible *rigor*, I should have scarcely any doubt in pronouncing the fever not to be of the ardent type: and there is also in the latter a sensation of burning at the pit of the stomach.

“The countenance in the gaol fever is commonly, although slightly, suffused, yet of a dirtyish hue, and by no means tumid, and there is commonly violent pulsation of the carotid arteries. In the remitting, after the hot fit is formed, the suffusion is great, but the tumour by no means so evident, particularly about the fauces and neck, as in the ardent. The mode of speaking is very different: in this, it is confused and thick; in the remitting, it varies only from health in a quickness, owing to the anxiety of the patient, not to any particular debility of the organs of speech; and in the gaol fever it is generally a quickness of speech for a word or two, rather as if from impatience at being disturbed, or else it is plaintive and querulous. Neither in the remitting nor typhus has the patient any of that appearance as of intoxication, which is frequently to be observed in the ardent fever.

“The tongue in typhus is generally very tremulous when put out: it is from the beginning furred, and soon becomes dry and chapped; and, towards the later stages of the disease, the tongue and lips are covered with black and loose saburra, floating like cobwebs, or they have a number of aphææ over their surface. In the remitting, the tongue is furred, but in no degree; and, as the disease advances, this fur becomes brown, but there is in general some moisture on it to the last. In the ardent fever the tongue has no fur upon it; on the contrary, we may call it morbidly clean: it

is rather moist, and of a bright red colour: as the disease advances, it sometimes becomes dry, at others not so, but always continues clean. The thirst is not so great as we might be led to expect in this fever, from the vehemence of the symptoms, neither is it in any proportion to what is felt in the others. In this fever also, while the prostration of strength is very great, the vomiting, burning heat of the stomach, and restlessness, are violently urgent, and the heat of the skin intense. The pulse varies very inconsiderably, either in strength or quickness, from its natural state, but in the other fevers, it is amongst the first symptoms to shew a derangement of the system.

“ The delirium is very different also: in the ardent fever, it is of the most fierce kind. The patient generally imagines himself in the presence of his most bitter enemies, who are either attacking him, or whom he is endeavouring to attack; the eye-balls are strained, the whole countenance puts on the most terrific aspect, and it often requires two or three persons to hold him in his bed. The delirium in the remitting is seldom so fierce; it is generally mild, the imagination of the patient busying itself with his former occupations and pursuits: while that of typhus seems scarcely to amount to more than a want of power of attention in the sick person to any thing about him; for during the time he is uttering the most incoherent nonsense; if he be roused, he gives a rational answer, but immediately relapses into his incoherent fit.”

The author considers these the symptoms which are most dissimilar in the different fevers; and has purposely omitted the yellowness of the skin, the black vomit, and the hæmorrhages from different parts of the body, as he says he has seen them occur in every species of fever in the tropical climates.

GENUS II. QUARTANA; the QUARTAN FEVER.

Quartana auctorum, Sauv. Gen. 89. Lin. 17. Vog. 3. Sag. 711. Hoffm. II. p. 23. Junck. tab. 81.

The Genuine QUARTAN. Sp. I. var. 1. A.

Quartana legitima, Sauv. sp. 1. Sydenham de morb. acut. cap. v.

1. *Description.*] The genuine quartan, according to Juncker, keeps its form more exactly than other intermittents; scarcely coming on at any other time than four or five in the afternoon. The cold is less violent than in the tertian; but is very perceptible, though it doth not proceed to such a height as to make the limbs shake; and continues for about two hours. It is preceded and accompanied by a languor both of body and mind. There is seldom any vomiting unless when the stomach is manifestly overloaded with aliment; neither is there any diarrhœa, but the belly

in general is rather bound, not only on the days on which the paroxysm takes place, but also on the intermediate ones. The heat, which slowly succeeds the cold, is less troublesome to the patient by its violence than by the uneasy dryness of the skin, which is scarce ever moistened with sweat. This heat rarely continues longer than four or six hours, unless perhaps at the first or second paroxysm. It is accompanied also with a giddiness and dull pain of the head. On the termination of the paroxysm, the patient returns to a middling state of health, and continues in the same for the rest of the intermediate days; only there remains somewhat of a loathing, and a deep-seated pain as if the body was all over bruised or broken, which kind of sensation the physicians are used to call *osteocopus*. The fit always returns every fourth day, and that precisely at the same hours, being rarely postponed.

2. *Causes of, and persons subject to, this disorder.*] The same general causes concur in producing this as in other intermittents, namely marsh miasmata, and whatever can dispose the body to be easily affected by them. Studious people, and those of a melancholic turn, are said to be particularly subject to quartans; but what are the immediate causes which produce a return of the fits every fourth day, instead of every day, or every third day, must probably lie for ever concealed, as depending upon the secret and inexplicable mechanism of the human body.

3. *Prognosis.*] A simple quartan, where there is no reason to dread any induration of the viscera, may very certainly admit of a cure; and the prognosis can never be unfavourable, unless in cases of extreme weakness, or where the disease hath been unskilfully treated.

4. *Cure.*] This does not in the least differ from that which hath been fully laid down for the simple tertian, and which it is therefore needless to repeat here.

The *Duplicated* QUARTAN. Sp. I. var. B.
Quartana duplicata, Sauv. sp. 4. Bonet.

This is entirely similar to the duplicated tertian already mentioned; proper allowance given for the difference between the type of a tertian and quartan.

The *Triplicated* QUARTAN. Sp. I. var. 1. C.
Quartana triplicata, Sauv. sp. 16.

This hath three paroxysms every fourth day, while the intermediate days are entirely free from fever.

The *Double* QUARTAN. Sp. I. var. 1. D.
Quartana duplex, Sauv. sp. 3. Vog. sp. 13.

In the double quartan, the fit comes on every day except the third; but so that the first paroxysm answers to the third, the second to the fourth, and so on.

The *Triple* QUARTAN. Sp. I. var. 1. E.

Quartana triplex, *Sauv.* Sp. 5. *Vog.* sp. 14. *Bartholin.*
H. anat. c. 1. 95.

This comes on every day, but the quartan type is still preserved by the times of accession; that is, the time of the fourth paroxysm's coming on answers to that of the first, fifth to the second, the sixth to the third, &c.

The QUARTAN, accompanied with *Symptoms* of other diseases.
Sp. I. var. 2.

Quartana cataleptica, *Sauv.* sp. 7. *Bonet.* polyalth. vol. 1. p. 805.

Quartana comatosa, *Sauv.* sp. 15. *Werholf.* de febr. C. *Pisonis*
Observ. de morbis a colluvie seros. obs. 166, 167, 168, 169,
171, 172, 173, 174.

Quartana epileptica, *Sauv.* sp. 8. *Scholzii* Conf. 379, 380.

Quartana hysterica, *Sauv.* sp. 10. *Morton.* Pyret. exerc. 1. cap.
ix. H. 10, 11.

Quartana nephralgica, *Sauv.* sp. 9.

Quartana metastatica, *Sauv.* sp. 17.

Quartana amens, *Sauv.* sp. 12. *Sydenham* de morb. acut. cap. v.

Quartana splenetica, *Sauv.* sp. 2. *Etmuller,* Coll. consult. cas.
25.

The QUARTAN complicated with other diseases. Sp. I. var. 3.

Quartana syphilitica, *Sauv.* sp. 6. *Plateri,* observ. L. III. p.
676. *Edin.* Ess. art. xlvii. obs. 8.

Quartana arthritica, *Sauv.* sp. 11. *Musgr.* de Arthr. sympt.
cap. ix. H. 4. et 5.

Arthritis febrilequa, *Sauv.* sp. 10.

Arthritis febricola, *Sauv.* sp. 10. *Werholf.* de febr. *Cockburn* de
morbis navigantium, obs. 19.

Quartana scorbutica, *Sauv.* sp. 14. *Barthol.* de med. Dan. diff.
iv. *Tim.* L. VIII. cas. 18.

The *Remitting* QUARTAN. Sp. II.

Tetartophya, *Sauv.* gen. 85. *Sag.* 699. *Lin.* 21.

Quartana remittens auctorum.

Var. 1. Tetartophya simplex, *Sauv.* sp. 1.

2. Amphimerina semiquartana, *Sauv.* sp. 23.

3. Tetartophya semitertiana, *Sauv.* sp. 5.

4. Tetartophya maligna, *Sauv.* sp. 6. *Lautter.*

Hist. med. cas. 21. *M. Douât*. L. III. cap. 14. ex *M. Gattenaria Horst*. L. I. obs. 15.

5. *Tetartophya carotica*, *Sauv.* sp. 4. *Werholf.* de febr. *Bianchi* Hist. hep. pars III. const. ann. 1718, p. 751.

6. *Tetartophya splenalgica*, *Sauv.* sp. 2.

7. *Tetartophya hepatalgica*, *Sauv.* sp. 3. *Car. Pis.* in prefat. p. 33.

8. *Amphimerina spasmodica*, *Sauv.* sp. 16.

To the tertian or quarian fevers also belong the *Erraticæ* of authors. As all those above mentioned differ only in the slight circumstance of the type from the intermitting and remitting tertians already described at length, it is unnecessary here to take up time in describing every minute circumstance related by physicians concerning them, especially as it could contribute nothing towards the laying down a better method of cure than what hath been already suggested.

GENUS III. QUOTIDIANA; the QUOTIDIAN FEVER.
Quotidiana auctorum, *Sauv.* gen. 86. *Lin.* 15. *Vog.* I. *Hoffm.* II. 33 *Junck.* tab. 79.

The *Genuine* QUOTIDIAN. Sp. I. var. I. A.

Quotidiana simplex, *Sauv.* sp. 1.

Quotidiana legitima, *Sennert.* de febr. cap. 18.

1. *Description.*] This kind of fever generally comes on about six or seven o'clock in the morning, beginning with a considerable degree of cold and shivering, which lasts for about an hour; and is often accompanied with vomiting, or spontaneous diarrhoea, or both. It is succeeded by a pretty strong heat, accompanied with thirst, restlessness, and pain of the head. When the heat abates a little, a spontaneous sweat commonly follows, and the whole paroxysm rarely exceeds six hours. It returns, however, every day almost always at the same hour, unless it be evidently disturbed.

2. *Causes of, and persons subject to, the disease.*] The same general causes are to be assigned for the quotidian as for other intermittents. This kind occurs but rarely; and is said to attack people of a phlegmatic temperament rather than any other: also old people rather than young, and women rather than men.

The prognosis and method of cure are not different from those of tertians and quartans.

The *Partial* QUOTIDIAN. Sp. I. var. I. B.

Quotidiana partialis, *Sauv.* sp. 16. *Conoffel*, E. N. C. D. I. A. III. obs. 205. *Edin. Med. Ess.* vol. i. art. 31. vol. ii. art. 16.

Quotidiana cephalalgica, *Sauv.* sp. 6. *Mori.* pyretol. exerc. i. hist. 27. *Van Swieten in Boerh.* p. 534.

Cephalalgia intermittens, *Sauv.* sp. 7.

Cephalæa febricosa, *Sauv.* sp. 4.

Quotidiana ophthalmica, *Morton*, *ibid.* hist. 17. *Van Swieten*, *ibid.*

Ophthalmia febricosa, *Sauv.* sp. 23.

These disorders attack only some particular part of the body, as the head, the eye, arm, &c. producing periodical affections of those parts returning once in twenty-four hours; and are to be cured by the bark, as other intermittents. They are known to belong to this class, by the evident intermission of the pain or other affection of the part. The *quotidiana hysterica*. *Sauv.* sp. 3. *quotidiana catarrhalis*, *Sauv.* sp. 9. and *quotidiana stranguriosa*, *Sauv.* sp. 11. seem to be symptomatic disorders.

The Remitting QUOTIDIAN. Sp. II.

Amphimerina, *Sauv.* gen. 84. *Lin.* 20.

Quotidiana continua, *Vog.* 15.

Quotidianæ remittentes et continuæ auctorum.

Amphimerina latica, *Sauv.* sp. 1.

Febris continua lymphatica, *Etmuller*, *Coll. conf. cas.* 32.

River. *Obs.* cent. 1. *obs.* 57.

Amphimerina singultuosa, *Sauv.* sp. 14.

Febris continua *Lyngodes*, *Vog.* 26.

Concerning these also nothing remains necessary to be mentioned in this place, having already so fully discussed the remitting fevers in all the different parts of the world. Many other varieties of these fevers mentioned by authors are merely symptomatic.

As it is universally conjectured that intermittent fevers arise from *marsh miasmata*, we cannot render the reader a greater service, perhaps, than by annexing to this section a most ingenious enquiry into the causes of the insalubrity of flat and marshy situations; together with his directions for preventing or correcting their effects, by Mr. William Currie, which have appeared in the *Transactions of the American Philosophical Society*.

"That flat and marshy situations are unfavourable to health, and that intermittent and remittent fevers, with bilious evacuations, are particularly prevalent in such situations during the season of autumn, in temperate climates as well as within the tropics, has been remarked by physicians and historians in every age.

"But although they have agreed with respect to the fact, they have differed materially with respect to the cause of this.

"A desire of ascertaining the true cause of this insalubrity induced me to engage in the enquiry which I am now about to submit to this respectable society; and I hope the time and attention which

I have bestowed upon a subject so interesting to mankind, will not be deemed labour misemployed.

"The atmosphere in salutary situations has been demonstrated, by M. Lavoisier and his colleagues, to be a compound body, consisting of two distinct gases or æriform fluids, the one called azote or nitrogen gas, and the other oxygen gas or pure respirable air; and that in one hundred parts of the atmosphere, the proportions of these gases are 72 of the azote and 28 of oxygen, or as three to one.

"From Mr. Vanbreda's experiments, on the atmosphere of marshes in the autumnal season, which he subjected to the common test of nitrous air in the eudiometer, it appears that these proportions were very different; there being but 14 or 15 parts of oxygen to 84 or 85 of azote, but that the bulk was supplied, and the same weight preserved, by a certain quantity of carbonic gas or fixed air, and a small portion of hydrogen and ammoniacal gases or æriform fluids.

"All these gases are the effects of vegetable and animal putrefaction, and must be derived from the soil, or the vegetable and animal substances connected with the soil.

"The soil of marshes is composed entirely of vegetable and animal substances, which have undergone the process of putrefaction, and consist principally of vegetable earth, carbon or charcoal and nitre, mixed with more or less calcareous and argillaceous earth, and by distillation affords oil, hydrogen, and azote.

"From this soil, and from the various vegetable and animal substances mixed with it, and constantly putrefying in hot weather, it has been supposed miasmata issue, which give origin to the diseases peculiar to marshy situations; and as there are no substances but those gases, already enumerated, which can be discovered to issue from a marshy soil, or from putrefying vegetable or animal substances, if those diseases depend upon miasmata or effluvia, these miasmata must consist of one or more of the gases enumerated*.

* In the vinous fermentation, part of the principles of the vegetable substance, viz. the hydrogen, remains united with a portion of water and of carbon to form the alkohol.

"In the acetous fermentation, a union takes place between the oxygen and the alkohol, and earthy matter is deposited. In other words, the base of the pure air absorbed, uniting with the alkohol of the liquor, and the essential salts dissolved in it, forms vinegar, while a deposition takes place of earthy or oily matters no longer soluble in the liquor. Hence vinegar is in an intermediate state between wine and fixed air, accordingly vinegar may be made by impregnated alkohol and water with fixed air.

"The gas of fermenting liquors, which is fixed air, holding some spirit of wine in solution received into water, has the same effect.

"In order to determine this matter, it will be necessary to enquire into the effects which these substances, singly, or combined, usually produce on the living human body.

"If the carbonic gas, or fixed air, when applied in a certain quantity, or in a concentrated state, destroys life instantly by its action on the irritability of the muscular fibres of the heart, as from the observations of Messrs. Priestley, Bergman, Fontana, Cavallo, and other philosophers of credit, appears to be the case, nothing is more probable than that a less quantity, though much weakened by diffusion in, and mixture with, the atmospheric air, would operate in a similar manner, though in a less degree, and occasion a disease of a paralytic or insensible kind, and not an intermittent or remittent, since in these last, the sensibility and irritability are manifestly increased.

"That the hydrogen gas or inflammable air has little or no share in the generation of the diseases under consideration, is rendered evident by the experiments of Chaptal, De Rosier, and Beddoes.*

"The former assures us, that he inspired it several times, without perceiving any effect from it, and that it returned from his lungs without any alteration either in weight, bulk, or quality, whereas common atmospheric air suffers a very material change by respiration, its pure or oxygenous portion being abstracted, and the remainder rendered incapable of supporting flame, and unfit for respiration.

"De Rosier not only inspired inflammable air, but applied flame to it as he discharged it through his nostrils, without receiving any injury from it. He also discharged the burning gas from his mouth through a tube, so that he appeared to breathe flame.—No detonation took place in his mouth, because he had discharged all the atmospheric air from his lungs, before he inspired the inflammable air.

"Dr. Beddoes prevailed on a stout florid young woman to inspire hydrogen for two minutes, without any perceptible effect, except a slight giddiness after she had descended a flight of stairs.

"No alteration is made in their properties by the mixture of carbonic with hydrogenous gas. No decomposition takes place, no caloric is set at liberty, or heat rendered sensible of such union.

"In the putrid fermentation (which is the only species that takes place in marshes), the whole of the hydrogen is dissipated, under the form of inflammable gas, while the oxygen and the carbon uniting, with the caloric or principle of heat, escapes under the form of fixed air;" after this process, if there has been sufficient water and heat to complete the putrefactive process, nothing remains but the earth of the vegetable, mixed with a little carbon and iron. CHAPTAL.

* It appears from the experiments of M. Lavoisier, that hydrogen is also the result of decomposed water; and that water is a composition of hydrogen and oxygen kept in a fluid state by its union with caloric, and consists of 85 parts in 100 of oxygen and 15 of hydrogen.

“We may, therefore, from what has now been stated, conclude, that neither carbonic nor hydrogen gas, singly or combined, is the miasma or effluvium by which the diseases in question are produced.

“In consequence of the putrefaction of farinaceous plants, and all such as abound more in gluten than in the saccharine, or mucilaginous principles, as well as from the putrefaction of animal substances, an ammoniacal gas is produced, owing to the union of the hydrogen, evolved in the putrefactive fermentation, with the superabundant azote of the atmosphere*. But this gas, instead of diminishing the powers of the human body, is well known to have a contrary effect, except when received into the lungs in a large quantity, and then it proves destructive from its stimulating quality, inducing a spasm on the glottis or bronchiæ. That neither the water of marshes, nor the exhalations which arise from thence, are septic or promoters of putrefaction, has been fully demonstrated by the experiments of Dr. Alexander†.

“But that any exhalation, or other substance, should act on the moving parts or solids of the human body several days after it has been received into the body, without making some material change in the condition or quality of the circulating fluids, is inadmissible, because it is scarcely conceivable. That such alteration is made in the quality of fluids in putrid fevers is manifest from the contagious effects of the several excretions. But in cases of intermittents and remittents which originate in marshy situations, no such evidence is afforded, for there is no authentic instance of these being contagious or communicable from one to another.

“As no other exhalations or noxious matters than those which

* Does the union of dead animal and vegetable substances prevent the noxious effects of each other?

† “Having filled a tea-cup with putrid water, taken from a ditch, in the meadows on the south side of Edinburgh (which in summer contain a considerable quantity of extremely putrid stagnating water), and another cup with pure water, I put a bit of mutton into each cup, and set them together in the open air. The mutton in the pure water began to putrefy in about 56 hours. At the end of three days, that in the marsh water was quite sweet. On the fifth day it was taken out, washed carefully with pure water, and found perfectly sweet. That in the pure water was now become intolerably fetid, and on that account was thrown away. The seventh day the mutton in the marsh water was washed again, and found as fresh as before. When it had lain in about six weeks, it still continued perfectly sweet, and the liquor around it of the same smell and colour as at first. After two months, things were exactly the same. The mutton was then thrown out.” Alexander’s Experimental Enquiry, p. 71.

From the experiments of the same gentleman it appears, that pieces of dead flesh, suspended over the exhalations of the putrid water of marshes, are five or six days longer putrefying than those suspended over the exhalations of pure water. (See his 15th and 17th experiments.)

have now been enumerated, can be discovered in the most unsalutary atmosphere of marshes; as there is no source from whence any other noxious substance can be introduced into the atmosphere of such situations; and as it is evident, from the known effects of the gases which have been discovered in it, that they cannot have the effect of producing the diseases under consideration, either when applied singly or united, we certainly ought to hesitate before we adopt the doctrine heretofore taught, respecting marsh miasmata.

“But as it is well known that a very material alteration is made in the proportions, which one of the component parts of the atmosphere bears to the other, by certain processes of nature and art, let us enquire how far the alteration which is made in the atmosphere and marshes, by the process of putrefaction, may affect the present question.

“Mr. Vanbreda’s experiments prove, that there is less oxygen in the atmosphere of marshes during autumn, when the weather is dry and hot, than in more salutary situations; and it is well known, from innumerable experiments, made by different philosophers, that this can only be diminished by combustion, fermentation, putrefaction, or respiration, or a process of a similar kind.

“It is also a fact, fully established, that the functions of life, as well as the process of combustion and fermentation, can only be continued by the application of oxygenous gas, and that these are affected in proportion to the quantity and purity of the gas applied.

“It was formerly discovered by Vesalius, and has since been confirmed by the observations of doctors Lower, Priestley, Crawford, and others, that the blood in the pulmonary veins is of as red and florid a colour as in the arteries, which is the reverse in every other part of the system. This circumstance has been demonstratively proved to be owing to the action of the oxygen, or the base of pure air upon the blood in the pulmonary veins.

“From the experiments of the discerning and ingenious Dr. Goodwin upon living animals, it appears that the action of the heart cannot be continued by the reception of the blood, which has not undergone this change of colour in the pulmonary veins from the application or introduction of oxygen. This fact has been since confirmed by the experiments of Dr. Girtanner, as may be seen in his essay on the principle and laws of irritability.

“That blood impregnated with oxygen, or the base of pure air, is the necessary and appropriate stimulus for giving motion to the heart, and enabling it to carry on the circulation of the blood, was rendered evident from the gradual diminution and debility of its contractions, as the colour of the blood became darker when the pure air was excluded, and from its contractions becoming

stronger as the blood recovered its florid colour from the application of pure air.

“In these experiments, all the other functions of the body were observed to be proportionally affected with the heart. As its contractions diminished, the power of these also declined: as the power of the heart recovered, these also recovered.

“By these experiments we learn that the abstraction or exclusion of the oxygenous part of the atmosphere, in a given space, is sufficient of itself to deprive animals of life by withholding the cause of action. Hence we are authorised, by the chastest rules of induction, to conclude, that health and life must be affected, more or less, in proportion to the quantity of this vivifying principle at any time abstracted from the atmosphere, which more immediately surrounds us.

“The presence of the other component part of the atmosphere, the base of the azotic gas though totally opposite to the oxygen with which it forms a perfect compound, and neutral substance when mixed in the proportions already mentioned, appears to have no share in destroying life, though its name is derived from a mistaken supposition that it had the effect; for the heart immersed in this gas will retain its irritability several hours, in a warm situation, after all signs of life have disappeared in the rest of the body. Mr. Valli’s experiments on animal electricity have established this fact.

“Carbonic gas, or fixed air, on the contrary, produces its destructive effects by a direct operation, for it destroys the nervous power and the irritability of the muscular fibres the instant that it is received into the lungs, and comes in contact with the heart.

“If the carbonic gas operated, as suggested by Mr. Kite, by inducing a spasm of the glottis, and thereby excluding the atmospheric air, the heart, as in other cases of suspended respiration, would retain its irritability for some time; but this is not the case.

“From the facts and observations which have now been stated, I think it may be fairly concluded, that the causes of the unwholesomeness of low and moist situations in the summer and autumnal months, is not owing to any invisible miasmata or noxious effluvia, which issue from the soil, and lurk in the air, but to a very different cause, *viz.* to a deficiency of the oxygenous portion of the atmosphere in such situations, in consequence of vegetable and animal putrefaction, in conjunction with the exhausting and debilitating heat of the days, and the sedative power of the cold and damp air of the nights.

“For want of the refreshing and salutary stimulus of the pure air, all the functions of the body are performed imperfectly and languidly. The nervous system in particular becomes preter-

naturally susceptible of impressions from every change that occurs in the temperature of the surrounding atmosphere. The application of, or exposure to, a damper and colder state of the air than usual, renders the vessels on the surface of the body powerless and atonic, the brain and heart sympathise with the extreme nerves and vessels, the power of every function of the body declines, till the heart, roused by accumulating blood, reacts with increasing velocity, and is relieved of the unusual burthen.

“That the causes which I have now assigned are the true ones, is rendered next to certain, from the frequent occurrence of those diseases (which have heretofore been supposed to depend upon the operation of specific miasmata) in situations remote from marshy grounds, particularly in large and populous cities, where sedentary occupations, and want of exercise, render the inhabitants delicate and infirm. I have seen numerous instances of this kind even in the winter season, when no effluvia from marshes could possibly exist, especially among those who had been previously debilitated by other disorders. Nor is it uncommon for persons who have recovered from intermittents in the autumn, to have frequent recurrences to the same disease in the winter, merely from sitting in a damp room, or other exposure to cold.

“In persons much reduced by the diseases of autumn, it is also very common, when attacked with inflammatory diseases of winter, for the system to resume its customary habits of action, and for the fever to resemble an intermittent in the time and manner of its exacerbations and remissions, and immediately after the removal of the local affection to become a regular intermittent. This is so generally the case on the eastern shore of Maryland, that the physicians in that country seldom make much use of the lancet in any of the diseases which occur there, except in the spring season. Are we not authorised, from these facts, to infer, that any circumstances which occasion a certain state of debility and irritability in the vessels and nerves on the surface of the body, and in the sensorium at the same time, are predisposing causes of the diseases we are now considering; and that when the system is in this condition, by whatever cause induced, the sudden application of cold, terror, or any other suddenly debilitating power, may become the exciting or occasional cause of febrile disease, in an indirect manner, by repelling the blood to the heart, lungs, and brain, and forcing them to react by the stimulus of distension?

“If the diseases of marshy situations were produced by a specific matter, they could never be produced by any other cause; but as they are frequently induced in seasons and situations where that supposed specific matter or miasma cannot possibly exist, there is nothing more clear than that they are not produced by any such specific matter.

"The opinion, that those diseases are the product of specific matter generated by vegetable putrefaction, appears to be entirely groundless from the disease varying in its type and symptoms, in proportion to the extent and putridity of the soil, state of culture, season and weather, with respect to heat, moisture, &c. and also in its not being contagious, the reverse of which is the case with all known diseases that are derived from specific matter.

"We are assured, by the accurate Monro, in his account of the diseases which prevailed in the military hospitals in Germany, in 1761 and 1762, that the intermitting fever seldom attacked any but those whose solids had been previously relaxed by the preceding heat of the summer, except when they had been fatigued and over-heated by the sun, and afterwards exposed to the evening dews.

"Dr. Lind, of Windsor, says, sudden exposure to cold occasioned either an inflammatory fever or a simple intermittent at Bengal, according to the predisposition of the body.

"The scurvy, as well as the diseases already enumerated, also appears to derive its existence from a deficiency of pure air in conjunction with a cold and moist atmosphere, and a diet of salted flesh meats. For it generally prevails in long voyages after a continuance of wet weather. The hatches being kept shut at such times, prevents ventilation, in consequence of which the oxygen becomes exhausted.

"Captain Cook in his two last voyages preserved his crew from the scurvy by frequent ventilation, constant cleanliness, suitable clothing, and strict discipline.

"Dr. Trotter assures us, that in a slave ship, of which he was surgeon, the seamen that were constantly on deck, and fed with the ordinary sea diet, remained free from the scurvy, while the slaves, that lived principally on vegetables, but breathed a confined impure air, fell miserable victims to it.

"The remarkable case of the blue boy, described by Dr. Sandifort, of Leyden, furnishes another striking example of the importance of oxygen in the preservation of health and life, as well as a confirmation of its being the cause of the red colour of the blood.

"In this boy, whose skin was as blue as indigo, the aorta communicated with both ventricles of the heart, in consequence of which the greatest part of the blood was immediately propelled from the right ventricle into the aorta, so that very little passed into the pulmonary artery to be oxygenated.

"An opinion equally erroneous with that which has lately prevailed respecting the causes of intermitting fevers, &c. has also been delivered down from age to age, respecting the causes of continued fevers of the nervous or putrid kind.

"The doctrine formerly taught respecting these was, that they derived their existence from the effluvia of dead and putrid animal

substances: but, from more recent and accurate observations, it appears that the contagion by which this kind of fever is produced, as well as those of a pestilential nature, is always derived from the living human body in confined and unventilated situations, and it is probable that the effluvia thus excreted partake of the quality of nitrogen gas, from their being rendered harmless by a union with oxygen or the base of pure air.

“It appears more than probable also, from the history of the circumstances always present at the time febrile contagion is generated, that it is rendered virulent and powerful in proportion to the absence or defect of oxygen, and the degree of heat to which the living body has been exposed in such situations. It was a concurrence of these circumstances which gave origin to the yellow fever which appeared in Grenada in the beginning of the year 1793, and which was afterwards imported into Philadelphia, as appears from the account published by Dr. Chisholm*.

“Noxious effluvia indeed frequently arise from putrid animal substances in confined situations. Dr. Monro mentions a remarkable instance of this, and some later examples are recorded by Mr. St. John; but it does not appear from these cases, that those noxious effluvia produced any symptoms resembling those of putrid or pestilential fevers: on the contrary, they acted as direct stimulants, and occasioned inflammatory affections without being preceded by that sense of debility which always precedes those fevers that are occasioned by febrile contagion.

“Having now shown that the diseases which prevail most generally during the autumnal season in low and marshy situations owe their origin, not to invisible exhalations or miasmata, but to the causes which I have assigned; the prophylaxis, or the means of preventing the occurrence of those diseases, must be simple and obvious.

“These are, to introduce and increase the proportion of oxygenous gas in the superincumbent atmosphere, and to prevent its future abstraction, by cutting off or diminishing the sources of putrefaction.

“It would be a happy circumstance, if the application of the means suited to produce an amendment in a body so large and fluctuating as the atmosphere, was as practicable as the means suited to effect that purpose are obvious: but, unfortunately, this requires too much labour and expence to admit of extensive application, especially in a country where population and wealth do not bear a due proportion to the extent of territory.

“We ought, however, to attempt every thing in our power to effect so desirable and useful an event.

* Vide Chisholm's Essay on the Fever of Grenada in 1793, &c.

"Chemistry furnishes various articles by means of which we can generate and introduce a supply of oxygen into the atmosphere, as well as alter the quality of those noxious gases with which it is occasionally contaminated.

"These, however, can only be employed in a very limited and partial manner, and of course can only produce a limited and partial amendment.

"I shall therefore mention only a few of the substances that may be occasionally employed for this purpose.

"A large portion of oxygen may be furnished by the decomposition of nitre, as is demonstrated from its maintaining the combustion of inflammable bodies.

"If lighted charcoal be placed in a proper exposure to the open air, it will continue to burn till the whole be reduced to ashes.

"If nitre be mixed with charcoal, and when kindled placed in a close vessel, the combustion will continue as well as if exposed to the open air; whereas, without the assistance of the nitre, the charcoal would be immediately extinguished in that situation for want of a supply of oxygen.

"Mr. Scheel, by heating nitre to red heat in a retort, received into a moistened bladder more than fifty ounces in measure of oxygen gas from one ounce of nitre. A pound will therefore furnish 800 ounces.

"Nitre, ground with two-thirds of its weight of minium and moistened with water, so as to form a paste, burns very rapidly, and emits a considerable quantity of pure air.

"But the grand engine, by which the sources that deprive the atmosphere of its salutary and vivifying principle are to be cut off, and the great magazine, from whence a sufficient supply is to be obtained, must be sought for in the art of agriculture.

"The stagnant waters may be carried off, and the soil of marshes rendered dry, by means of drains, deep trenches, and wells; and farther stagnation and putrefaction prevented, by consuming the dead weeds, grass, and woods, and by filling up the flats, sinks, and hollows, with clay, sand, or lime.

"And the atmosphere may be supplied with a profusion of oxygen by cultivating on such soils grasses and plants of vigorous growth, and especially those which live and flourish latest in the season. For vegetables, while living and growing, when exposed to the rays of light, constantly decompose the water they imbibe from the earth and air, and while they retain the hydrogen or base of inflammable air for the formation of oil, wax, honey, or resin, they replenish the atmosphere with oxygen*.

"When it is impracticable to render marshy situations dry, on

* Chaptal's Chemistry. Ingenhousz's Observations, &c.

account of their extent, they should be kept constantly flooded by means of dams and sluices, to prevent the effects of putrefaction; for, when dead vegetable or animal substances are immersed in water so as to be entirely excluded from contact with the air, putrefaction can only take place in a slow and imperfect manner.

“But clearing the woods, plants, and herbs, from marshy or fenny tracts, without draining off the stagnant water at the same time, and destroying the dead herbage by fire, instead of rendering such situations more healthful, has been found to have a different effect, because a greater extent of putrescent surface is thereby exposed to the rays of the sun, and of course a greater portion of oxygen abstracted from the atmosphere. It is owing, in a great measure, to this circumstance, that all new countries are so generally fatal to the first settlers.

“The same land after it has been cultivated a few years, especially if there be sufficient declivity to prevent the water from stagnating, loses its unwholesomeness, the putrescent substances mixed with the soil or superficial stratum of the ground having finished the putrefactive process by that time. In order, therefore, to render and preserve marshy countries healthful, they should be preserved dry and clean by means of the spade, the plough, and the rake.

“When the level situation of a place prevents the stagnant water from being carried off by drains, deep wells should be dug, in different places, for the water to collect in, by which means a greater portion of the soil will be rendered dry, and less noxious.

“To prevent still farther the injurious effects of residing near marshes or mill-ponds, rows of such trees as grow rapidly, and retain their verdure late in the season, should be planted between those situations and the mansion, for the purpose of intercepting the moisture in its progress, while they furnish a constant supply of oxygen to the atmosphere.

“Lodging in the upper story of a house has been found to preserve health during a sickly season, instances of which are recorded by Sir John Pringle. This appears to be owing to those situations being out of the reach of the moisture from the ground.”

SECT. II. CONTINUED FEVER.

Continuæ, *Sauv.* class ii. ord. 1. *Vog.* class I. ord. 2. *Sag.* 666. *Berh.* 727.

Continentes, *Lin.* class ii. ord. 1. *Stahl.* *Cas. mag.* 35. *Cas. min.* 87. *Junck.* 58. *Sennert.* de febr. L. ii. cap. 2. et 10.

GENUS IV. SYNOCHA.

Synocha, *Sauv.* gen. 80. *Lin.* 12. *Junck.* 58.

Synocha, five febris acuta sanguinea, *Hoffm.* II. 105.

Synochus, *Vog.* 16.

Continua non putris, *Bocrh.* 720.

Ephemera, *Sauv. g.* 79. *Bocrh.* 728. *Junck.* 57.

Diaria, *Lin.* 11.

Febris inflammatoria auctorum.

1. *Description.*] The most simple kind of synocha is the ephemera or diary fever. It begins without any sensation of cold or shivering, unless there be some internal inflammation, or the small-pox or measles happen to be present. A continual heat without any intermission constitutes the essence of this disease. The heat, however, is more tolerable than in the synocha properly so called. In some the pains of the head are pungent and throbbing, answering to the pulsations of the arteries; but in others they are dull and heavy. The face is red and bloated; and there is a remarkable lassitude of the limbs, with a strong, full, and frequent pulse. The urine is red, and deposits a sediment almost of the colour of orange-peel; and in the very first day of the disease, signs of *concoction* (according to the Hippocratic phrase) appear. The fever commonly goes off with a gentle sweat, but sometimes, though more rarely, with an hemorrhagy of the nose. Its shortest period is twenty-four hours; but if it goes beyond the fourth day, it is then a *synocha* properly so called.

The simple synocha, according to Vogel, begins with cold and shivering, succeeded by vehement heat, redness and dryness of the skin.—The face, especially, is very red, and the thirst intense. The head is either pained or heavy. The patient either doth not sleep at all, or is disturbed with dreams. A moist sweat then breaks out all over the skin. The pulse is full, quick, and frequent; the judgment is sometimes a little disturbed: young people are apt to be terrified with imaginations; and they for the most part incline to sleep: the respiration is difficult, and the belly costive; at the same time that a tense kind of lassitude is perceived over the whole body. A complete crisis takes place either on the fourth or at the farthest on the eleventh day. The characteristic marks of the simple synocha, therefore, are, a redness of the face, moisture of the skin, a strong and frequent pulse.

Causes of, and persons subject to, this disease.] As we have already remarked of intermittents, so must we also now remark of continued fevers, that it is impossible to discover those minute causes which occasion the difference of type betwixt one inflammatory fever and another, though most authors pretend to enumerate these with great certainty. Thus Juncker tells us, that the cause of the simple ephemera is plethora, together with any immoderate agitation and commotion of the fluids while in that state. Vogel reckons among the causes of his *febris diaria*, passions of the mind, pain, want, exposure to the sun, &c.; 2

repulsion or absorption of certain humours; wounds, fractures, luxations, &c.; so that in general we may reckon every thing tending to increase the action of the arterial system to be in certain circumstances a cause of inflammatory fever. Hence we find those are most subject to the synocha whose constitution is either naturally robust, or who are exposed to those causes which tend to produce an increased action of the arterial system; such as hard labour, high living, &c.

3. *Prognosis.*] The most simple kind of synocha, that is, the ephemera or diary fever, is commonly cured without the assistance of medicine, and therefore the prognosis is for the most part favourable: yet, if it be improperly treated by heating medicines, it may easily be converted into the other kind; or, if there be a putrid disposition of the fluids, into a fever of a very dangerous nature. The same thing is to be understood even of the most violent kind; for simple inflammatory fevers are not dangerous unless complicated with an affection of some particular part, as the pleura, stomach, &c.

4. *Cure.*] Dr. Cullen objects to the plan of those who are for leaving the cure of continued fevers to the operations of nature; because these operations are neither certain in themselves, nor are they so well understood as to enable us to regulate them properly; and it is likewise possible to supersede them by art. The plan therefore on which he proceeds is, to form his indications of cure upon the means of obviating the tendency to death in fevers; and these he reduces to three. 1. To moderate the violence of re-action. 2. To remove or obviate the causes of debility; and, 3. To obviate or correct the tendency of the fluids to putrefaction.

The *first* indication may be answered, 1. By all those means which diminish the action of the heart and arteries. 2. By those which take off the spasm of the extreme vessels, which, according to his theory, is the chief cause of violent re-action.

1. The action of the heart and arteries may be diminished, 1. By avoiding or moderating those irritations which, in one degree or other, are almost constantly applied to the body. 2. By the use of certain sedative powers. 3. By diminishing the tension or tone of the arterial system.

α The irritations above mentioned are the impressions made upon our senses, the exercise of the body and mind, and the taking in of aliments.—The avoiding of these as much as possible, or the moderating their force, makes what is properly called the *antiphlogistic regimen*, proper to be employed in *almost* every continued fever. This regimen is to be directed in the following manner.

1. Impressions on the external senses, as stimulant to the system, and a chief support of its activity, should be avoided as much as possible; especially such as are of a stronger kind, and

which give pain and uneasiness. No impression is to be more carefully guarded against than that of external heat; and at the same time every other means of increasing the heat of the body is to be shunned. Both these precautions are to be taken as soon as a hot stage is fully formed, and to be attended to during its continuance, except in certain cases, where a determination to sweating is necessary, or where the stimulant effects of heat may be compensated by circumstances which determine it to produce a relaxation and revulsion.

2. All motion of the body is to be avoided as much as possible, and that posture only chosen which employs the fewest muscles, and keeps none of them long in a state of contraction. Speaking, as it accelerates respiration, is particularly to be avoided. It must also be observed, that every motion of the body is more stimulant in proportion as the patient is weaker.

3. The exercise of the mind is also to be avoided, as being a stimulus to the body; but here an exception is to be made in the case of a delirium coming on, when the presenting of accustomed objects may divert the irregular train of ideas then arising in the mind.

4. The presence of recent aliment in the stomach proves always a stimulus to the system, and ought therefore to be as moderate as possible. A total abstinence for some time may be of service; but as this cannot be long continued with safety, we must avoid the stimulus of aliment by choosing that kind which gives the least. Alimentary matters are also to be accounted more stimulant in proportion to their alkalescent qualities; and this leads us to avoid animal, and use mostly vegetable food.

Dr. Fordyce states the following to be proper substances for food: viz. decoctions of rice, barley, oats, &c. Barley, oats, rice, &c. shelled, and afterwards boiled; or fermented, baked into bread, and afterwards toasted. Fruits which are not acescent or flatulent; recent or dried; roasted, baked, or boiled. Milk; broths made of pullets, lean mutton, and beef. Pullets about nine months old, roasted or boiled. Whittings, flounders, &c. these fishes however are seldom to be used in continued fevers. For the same reason, aromatic and spirituous liquors are to be avoided; and in answering the present indication, we must abstain from all fermented liquors except those of the lowest quality. Other stimuli are, the sensation of thirst, crudities or corrupted humours in the stomach, a preternatural retention of the fæces in the intestines, and a general acrimony of all the humours, which is in most fevers to be suspected. These are to be removed by such methods as the urgency of the symptoms require, by diluting liquors, vomiting, the use of acids, laxative clysters, and large quantities of antiseptic drink.

β The second method of moderating the violence of reaction

is by the employment of certain sedative powers, with a view to diminish the activity of the whole body, and particularly that of the sanguiferous system. The first of these to be mentioned is the application of cold. Heat is the chief support of the activity of the animal system; and the system is therefore provided with a power of generating heat in itself: but, at the same time, we may observe, that this would go to excess, were it not constantly moderated by a cooler temperature in the surrounding atmosphere. When, therefore, the generating power of heat in the system is increased, as is commonly the case in fevers, it is necessary not only to avoid all further means of increasing it, but also to apply air of a cooler temperature; or at least to apply it more entirely and freely than in a state of health. This is shewn, from some late observations, to be a very powerful means of moderating the violence of reaction; but what is the mode of its operation, to what circumstances of fever it particularly applies, or what limitations it requires, are not yet fully ascertained.

Another sedative power very frequently employed in fevers, is that of certain medicines known in the *materia medica* by the name of *refrigerants*. The chief of these are acids of all kinds when sufficiently diluted, and which are, in several respects, remedies adapted to continued fevers. Those especially in use are the vitriolic, muriatic, and vegetable; and on many accounts the latter, such as the acids of tamarinds, lemons, oranges, mulberries, barberries, &c. are to be preferred. Another set of refrigerants are the neutral salts formed of the vitriolic, nitrous, or vegetable acids, with alkalies either fixed or volatile. All these neutrals, while they are dissolved in water, generate cold; but as that cold ceases soon after the dissolution is finished, and as the salts are generally exhibited in a dissolved state, their refrigerent power in the animal body does not all depend upon their power of generating cold with water. Nitre is the refrigerant chiefly employed; but all the others, compounded as above mentioned, partake more or less of the same quality. Besides these neutrals, some metallic salts have also been employed in fevers, particularly the sugar of lead: but the refrigerant powers of this salt are by no means ascertained, and its deleterious qualities are too well known to admit of its ever being used.

7. The third general method of diminishing the reaction of the system, is by lessening the tension, tone, and activity, of the sanguiferous system. As the activity of the system in a great measure depends upon the tone, and this again upon the tension, of the vessels, given to them by the quantity of fluids they contain, it is evident that the diminution of the quantity of these must diminish the activity of the sanguiferous system. The most efficacious means of diminishing the quantity of fluids is by the

evacuations of blood-letting and purging. The former is evidently one of the most powerful means of diminishing the activity of the whole body, and especially of the sanguiferous system; and it must therefore be the most effectual means of moderating the reaction in fevers. When the violence of reaction, and its constant attendant a phlogistic diathesis, are sufficiently evident; when these constitute the principal part of the disease, and may be expected to continue through the whole of it, as in the cases of synocha; then blood-letting is the principal remedy, and may be employed as far as the symptoms of the disease may seem to require, and the constitution of the patient will bear. It must, however, be remarked, that a greater evacuation than is necessary may occasion a slower recovery, and render the person more liable to a relapse, or bring on other diseases. It is also to be observed, that this evacuation is the more effectual, as the blood is more suddenly drawn off, and as the body is at the same time more free from all irritation, and therefore when it is in a posture in which the fewest muscles are in action.

With regard to purging, when we consider the quantity of fluids constantly present in the cavity of the intestines, and the quantity which may be drawn off from the innumerable excretories that open into this cavity, it will be obvious, that a very great evacuation may be made in this way; and if this be done by a stimulus that is not at the same time communicated to the rest of the body, it may, by emptying both the cavity of the intestines and the arteries which furnish the excretions poured into it, induce a considerable relaxation in the whole system; and is therefore suited to moderate the violence of reaction in fevers. But it is to be observed, that as the fluid drawn from the excretories opening into the intestines is not all drawn immediately from the arteries, and as what is even more immediately drawn from these is drawn off slowly; so the evacuation will not, in proportion to its quantity, occasion such a sudden depletion of the red vessels as blood-letting does; and therefore cannot act so powerfully in taking off the phlogistic diathesis of the system.

At the same time the evacuation may induce a considerable degree of debility; and therefore, in those cases in which a dangerous state of debility is likely to occur, purging is to be employed with a great deal of caution; and this caution is more difficult to be observed than in the case of blood-letting: and it is further to be noticed, that as purging takes off in some measure the determination of the blood to the vessels on the surface of the body, it seems to be an evacuation not well adapted to the cure of fevers.

II. The other method of moderating the violence of reaction in fevers is by the exhibition of those remedies suited to take off the spasm of the extreme vessels, supposed to be the irritation

which chiefly supports the reaction. The means to be employed for this purpose are either internal or external.

First, The internal means are, 1. Those which determine the force of the circulation to the extreme vessels on the surface of the body, and, by restoring the tone and activity of these vessels, overcome the spasm on their extremities. 2. Those medicines which have the power of taking off spasm in any part of the system, and which are known under the title of *antispasmodics*.

(1.) Those remedies which are fit to determine to the surface of the body are, 1. Diluents. 2. Neutral salts. 3. Sudorifics. 4. Emetics.

1. Water enters, in a large proportion, into the composition of all the animal fluids, and a large quantity of it is always diffused through the whole of the common mass. In a sound state, the fluidity of the whole mass depends upon the quantity of water present in it. Water therefore is the proper diluent of our mass of blood, and other fluids are diluent only in proportion to the quantity of water they contain.

In a healthy state, also, the fullness of the extreme vessels and the quantity of excretion are in proportion to the quantity of water present in the body. But in fever, though the excretions be in some measure interrupted, they continue in such quantity as to exhale the more fluid parts of the blood; and, while a portion of them is at the same time necessarily retained in the larger vessels, the smaller, and the extreme vessels, both from the deficiency of fluid and their own contracted state, are less filled, and therefore allowed to remain in that condition. To remedy this contracted state, nothing is more necessary than a large supply of water or watery fluids taken in by drinking or otherwise; for as any superfluous quantity of water is forced off by the several excretories, such a force applied may be a means of dilating the extreme vessels, and of overcoming the spasm affecting their extremities. Accordingly, the throwing in of a large quantity of watery fluids has been, at all times, a remedy much employed in fevers; and in no instance more remarkably than by the Spanish and Italian physicians, in the use of what they call the *diæta aquea*. This practice consists in taking away every other kind of aliment and drink, and in giving, in divided portions, every day for several days together, six or eight pounds of plain water, generally cold, but sometimes warm. All this, however, is to be done only after the disease has continued for some time, and at least for a week.

2. A second means of determining to the surface of the body, is by the use of *neutral salts*. These neutrals, in a certain dose, taken into the stomach, produce soon after a sense of heat upon the surface of the body; and, if the body be covered close and kept

warm, a sweat is readily brought out. The same medicines taken during the cold stage of a fever, very often put an end to it, and bring on the hot one; and they are also remarkable for stopping the vomiting which so frequently attends the cold stage of fevers. All this shows, that neutral salts have a power of determining the blood to the surface of the body, and may therefore be of use in taking off the spasm which subsists there in fevers. The neutral most commonly employed in fevers, is that formed of an alkali with the native acid of vegetables. But all the other neutrals have more or less the same virtue; and perhaps some of them, particularly the ammoniacal salts, possess it in a stronger degree. As cold water taken into the stomach often shows the same diaphoretic effects with the neutral salts, it is probable that the effect of the latter depends upon their refrigerant powers. The following is very generally given in the London hospitals:

(No. 21.) ℞ Aq. Menth. fativæ ℥iss.

Kali præp. ℥j.

Succ. Limon. q. s. ad sat.

Syr. Croci ℥ij. M. f. Haust. cap. quarta quaq. hora.

Among the formulæ of St. Bartholomew's is the following, under the name of *Haustus Kali cum limone*.

(No. 22.) ℞ Kali præp. Sacch. pur. sing. ℥j.

Succ. limon. ℥ss.

Aq. Menth. pip. ℥iss. Misce fiat Haust.

In the Pharmacopœia of Guy's hospital are the following formulæ, which appear to be well adapted to these ends:

(No. 23.) ℞ Aquæ ammoniæ acet.

— menthæ fativ. sing. ℥iiiss.

Misce fiat Julepum.

(No. 24.) ℞ Kali acetati ℥ss.

Aquæ menthæ fativ. ℥vij.

Syrupi zingiberis ℥ss. Misce fiat Julepum.

(No. 25.) ℞ Nitri purificati ℥iv.

Aquæ distillatæ ℥vij.

Syrupi simp. ℥ij. Misce.

Of these three or four spoonfuls may be administered twice or thrice a-day.

The late Dr. Hugh Smith recommended the following:

(No. 26.) ℞ Kali præpar. ℥j.

Succ. limon. ℥ss.

Aquæ cinnam. ℥j.

Sacchari alb. ℥ss.

Misce fiat Haustus quarta quaque hora sumendus.

3. A third method of determining to the surface of the body, and taking off the spasm subsisting there, is by the use of *sudorifics*. The propriety of this remedy has been much disputed; and many specious arguments may be adduced both for and against the

practice. In its favour may be urged, 1. That in healthy persons, in every case of increased action of the heart and arteries, a sweating takes place, and is, seemingly, the means of preventing the bad effects of such increased action. 2. That, in fevers, their most usual solution and termination is by spontaneous sweating. 3. That, even when excited by art, it has been found useful at certain periods, and in certain species of fever.—On the other hand, it may be urged against the practice of sweating, 1. That in fevers, as a spontaneous sweating does not immediately come on, there are some circumstances different from those in the state of health, and which may render it doubtful whether the sweating can be safely excited by art. 2. That in many cases the practice has been attended with bad consequences. The means commonly employed have a tendency to produce an inflammatory diathesis; which, if not taken off by the sweat succeeding, must be increased with much danger. Thus sweating employed to prevent the accessions of intermitting fevers has often changed them into a continued form, which is always dangerous. 3. The utility of the practice is doubtful; as sweating, when it happens, does not always give a final determination, as must be manifest in the case of intermittents, and in many continued fevers which are sometimes in the beginning attended with sweatings which do not prove final; and, on the contrary, whether they be spontaneous or excited by art, they seem often to aggravate the disease.

From these considerations, it is doubtful if the practice of sweating can be admitted very generally; but, at the same time, it is also very doubtful if the failure of the practice, or the mischiefs said to arise from it, have not been owing to the improper conduct of the practitioner. With respect to the last, it is almost agreed among physicians, 1. That sweating has been generally hurtful when excited by stimulant, heating, and inflammatory medicines. 2. That it has been hurtful when excited by much external heat, and continued with a great increase of the heat of the body. 3. That it is always hurtful when it does not relieve; and rather increases the frequency and hardness of the pulse, the anxiety and difficulty of breathing, the headach, and delirium. 4. That it is always hurtful if it be urged when the sweat is not fluid, and when it is partial and on the superior parts of the body only.

In these cases, it is probable, that either an inflammatory diathesis is produced, which increases the spasm on the extreme vessels; or that, from other causes, the spasm is too much fixed to yield easily to the increased action of the heart and arteries; and upon either supposition it must be obvious, that urging the sweat may produce determinations to some of the internal parts, attended with very great danger.

Notwithstanding these doubts, however, it still remains true, 1. That sweating has been often useful in preventing the accessions of fevers when they have been certainly foreseen, and a proper conduct employed. 2. That even after fevers have in some measure come on, sweating has interrupted their progress when properly employed, either at the very beginning of the disease, or during its approach and gradual formation. 3. That even after pyrexia have continued for some time, sweating has been successfully employed in curing them, as is particularly exemplified in the case of a rheumatism. 4. That certain fevers produced by a very powerful sedative contagion, have been generally treated most successfully by sweating.

These instances are in favour of sweating, but give no general rule; and it must be left to farther experience to determine how far any general rule can be established in this matter. In the mean time, if the practice of sweating is to be attempted, the following rules may be laid down for the conduct of it. 1. That a sweat should be excited without the use of stimulant inflammatory medicines. 2. That it should be excited with as little external heat, and with as little increase of the heat of the body, as possible. 3. That, when excited, it should be continued for a due length of time; not less than twelve hours, and sometimes for twenty-four or forty-eight hours; always, however, supposing that it proceeds without the dangerous circumstances already mentioned. 4. That for some part of the time, and as long as the person can easily bear, it should be carried on without admitting of sleep. 5. That it should be rendered universal over the whole body; and, therefore, particularly that care should be taken to bring the sweating to the lower extremities. 6. That the practice should be rendered safer by moderate purging excited at the same time. 7. That it should not be suddenly checked by cold any-how applied to the body.

When attention is to be given to these rules, the sweating may be excited, 1. By warm bathing, or a fomentation of the lower extremities. 2. By frequent draughts of tepid liquors, chiefly water, rendered more grateful by the addition of a light aromatic, or more powerful by that of a small quantity of wine. 3. By giving some doses of neutral salts. 4. Most effectually, and perhaps most safely, by a large dose of an opiate joined with a portion of neutral salts, and of an emetic.

The fourth mean of determining to the surface of the body, and thereby taking off the spasm affecting the extreme vessels, is by the use of emetics. These, particularly of the antimonial kind, have been employed in the cure of fevers ever since the introduction of chemical medicines; and, though of late their use has become very general, their efficacy is still disputed, and their manner of operating is differently explained.

Vomiting is in many respects useful in fevers; as it evacuates the contents of the stomach, as it emulges the biliary and pancreatic ducts, and evacuates the contents of the duodenum, and perhaps also of a larger portion of the intestines; as it agitates the whole of the abdominal viscera, it expedites the circulation in them, and promotes their several secretions; and lastly, as it agitates also the viscera of the thorax, it has like effects there.

It is not to this cause, however, that we are to impute the effect vomiting has in determining to the surface of the body. This must be attributed to the particular operation of emetics upon the muscular fibres of the stomach, whereby they excite the action of the extreme arteries on the surface of the body, and by this means effectually determine the blood to these vessels, remove the atony, and take off the spasm affecting them. For this purpose they are exhibited in two different ways; that is, either in such doses as may excite full and repeated vomitings, or in such doses as may excite sickness and nausea only, with little or no vomiting at all.

Full vomiting is well suited to determine to the surface of the body, and thereby to obviate the atony and spasm which lay the foundation of fever. Thus, vomiting excited a little before the expected accession of the paroxysm of an intermittent, has been found to prevent the paroxysm altogether. It has been observed also, that when contagion has been applied to a person, and first discovers its operation, a vomit given has prevented the fever which might otherwise have been expected.

These are the advantages to be obtained by exciting vomiting at the first approach of fevers, or of the paroxysm of fevers; and they may also be used after fevers are formed, to take off, perhaps entirely, the atony and spasm, or at least to moderate these, so that the fever may proceed more gently and safely. It is seldom, however, that vomiting is found to produce a final solution of fevers; and after they are once formed, it is commonly necessary to repeat the vomiting several times; but this is attended with inconvenience, and sometimes with disadvantage. The operation of full vomiting is transitory, and the exercise of vomiting is a debilitating power; and therefore, when the vomiting does not remove the atony and spasm very entirely, it may give occasion to their recurrence with greater force. For these reasons, after fevers are fully formed, some physicians have thought proper to employ emetics in nauseating doses only. These are capable of exciting the action of the extreme vessels, and their operation is more permanent. At the same time they often show their power by exciting some degree of sweat, and their operation is rendered more safe by their commonly producing some evacuation by stool. But nausea continued for any great length of time, is, to most patients, a sensation highly distressing, and almost insufferable.

The emetics chiefly in use at present are, ipecacuanha and an-

timony. The former may be employed for determining to the surface of the body: but, even in very small doses, it so readily excites vomiting, that it is with difficulty employed for the purpose of nauseating only; and, in whatever manner employed, there is reason to suspect that its effects are less permanent, and less powerfully communicated from the stomach to the rest of the system, than those of antimony. This last is therefore generally preferred; and its preparations, seemingly various, may all be reduced to two heads; one comprehending those in which the reguline part is in a condition to be acted upon by acids, and therefore on meeting with acids in the stomach it becomes active; and another, comprehending those preparations in which the reguline part is already joined with an acid, rendering it active. Of each kind there are great numbers, but not differing essentially from one another; the two most worthy of notice are, the *calx nitrata antimonii* of the Edinburgh, and the *antimonium tartarifatum* of the London dispensatories. Both these are very efficacious medicines; but the latter seems preferable, because its dose is capable of being better ascertained; though the former, on account of its slower operation, may have some advantages, and in certain cases be more efficacious as a purgative and sudorific.

The *calx nitrata antimonii*, when first introduced into the pharmacopœia of the Edinburgh college, was supposed to be very nearly, if not precisely, the same with a medicine which has long been highly celebrated in the cure of fevers, Dr. James's powder. But from later and more accurate observations, there is now reason to believe that the *pulvis antimonialis* of the London pharmacopœia, formed by the calcination of antimony with hartshorn, approaches more nearly to that celebrated arcanum. But at any rate, the *calx antimonii nitrata*, the *pulvis antimonialis*, and James's powder, are probably not essentially different from each other. The two latter, however, have the most near resemblance; and accordingly the Edinburgh college in the last edition of their pharmacopœia have introduced an article under the title of *antimonium calcaro-phosphoratum*, which they consider as so much similar to James's powder, that they have used as a synonyme for it, the title of *pulvis Jacobi*.

The time most proper for exhibiting these medicines is a little before the accession, when that can be certainly known. In continued fevers the exacerbations are not always very observable; but there is reason to believe, that one commonly happens about noon or soon after it; and that these, therefore, are the most proper times for exhibiting emetics.

With respect to the manner of administration, that of the *pulvis antimonialis* is simple, as the whole of what is thought a proper dose may be given at once; and no more can be properly given till the accession. The administration of the tartarified antimony

is different. It is to be given in small doses, not sufficient to excite vomiting; and these doses are to be repeated after short intervals for several times, till sickness, nausea, and some, though not much, vomiting come on. The difference of administration must depend upon the dose, and the length of the interval at which it is given. If it be intended that the medicine should certainly operate by stool, the doses are made small, and the intervals long. On the contrary, when vomiting is proper, or when much purging ought to be avoided, and therefore some vomiting must be admitted, the doses are made larger, and the intervals shorter. With respect to both kinds of preparations, the repetition is to be made at the times of accession, but not very often: for if the first exhibitions, duly managed, have little effect, it is seldom that the after-exhibitions, have much; and it sometimes happens that the repeated vomiting, and especially repeated purging, does harm by weakening the patient.

Dr. Fouldyce in his treatment of fever, greatly relies on the use of this class of medicines, which he names *relaxants*. He gives the following formula:

(No. 27.) \mathcal{R} Sacchar. Alb. \mathfrak{zj} .

Antim. tartar. gr. ijs. ad gr. iij. Divide in pulv. \mathfrak{vj} .

Capiat \mathfrak{j} . sexta quaque horâ.

If the bowels are too much affected by antimony, he in that case substitutes a grain or two of ipecacuanha, and continues these means till the spasm of the extreme vessels gives way, and the fever is conquered.

At St. Bartholomew's hospital the pulvis antimonialis is given in doses of five grains for the same purpose.

At Guy's the following formula is employed, in the dose of three or four spoonfuls every four or six hours:

(No. 28.) \mathcal{R} Antimonii tartarificati gr. ij.

Aquæ distillatæ \mathfrak{zviij} . Fiat Julepum.

In some cases it may be proper to join antimonials with the neutral mixtures, as in the following directed by Dr. Saunders:

(No. 29.) \mathcal{R} Kali præp. \mathfrak{zij} .

Succ. limon. q. s. ut rite saturetur alkali.

Vin. antim. tart. \mathfrak{zij} .

Aquæ Cinnam.

Aquæ distillatæ sing. \mathfrak{zij} .

Syrupi simp. \mathfrak{zij} . Sit Julepum, cujus æger capiat cochlearia tria, quarta quavis horâ.

(2.) The other set of internal medicines which are supposed useful in taking off the spasm of the extreme vessels, are those named *antispasmodic*. But whatever may be the virtues of some of them in this way, such is their power of stimulating at the same time, that very few of them can with safety be administered in fevers of an inflammatory nature. Almost the only one which

can with safety be exhibited in these cases is camphor; and the operations of this are by no means well ascertained. Dr Huxham mentions it as a corrector of the acrimony of cantharides; and assures us, that it very effectually promotes a diaphoresis. But from the remarks of other practitioners, we have no just reason to suppose that it acts perceptibly in a dose of five or six grains, though in 15 or 20 it produces a particular kind of intoxication, and causes great heat.

It may not be amiss to observe in this place, that camphor, when joined with antimonials, greatly lessens the pernicious activity of the latter in fevers. This quality, however, is only observable when both are united in considerable doses. Dr. Saunders directs the following in some febrile affections where a gentle sedative and sudorific action are desirable :

(No. 30.) R. Aquæ ammon. acet. ℥ij.

Vin. Antim. tart. ʒj.

Mist. camphorat. ℥iv. Misce Sumat cochlearia tria sexta quaque horâ.

Secondly, The external means suited to take off the spasm of the extreme vessels, are blistering and warm bathing.

1. What are the effects of *blistering* so frequently employed in fevers, is not yet agreed upon among physicians. Dr. Cullen is of opinion, that the small quantity of cantharides absorbed from a blistering plaster, is not sufficient to change the consistence of the mass of blood; and therefore, that such a quantity can neither do good by resolving phlogistic lentor if it exists, nor do harm by increasing the dissolution of the blood arising from a putrid tendency in it. The effects of cantharides upon the fluids, therefore, may be entirely neglected. The inflammation produced by the application of cantharides to the skin, affords a certain proof of their stimulant power: but in many persons the effect of that stimulus is not considerable; in many it is not communicated to the whole system; and even when it does take place in the whole system, it seems to be taken off very entirely by the effusion and evacuation of serum from the blistered part. It may be concluded, therefore, that neither much good is to be expected, nor much harm to be apprehended, from the stimulant power of blistering; and the certainty of this conclusion is established by the great benefit arising from the proper practice of blistering in inflammatory diseases. Much has been imputed to the evacuation made by blistering; but it is never so considerable as to affect the whole system; and therefore can neither by a sudden depletion relax the sanguiferous system, nor by any revulsion affect the general distribution of the fluids. The evacuation, however, is so considerable as to affect the neighbouring vessels; and the manifest utility of blistering near the part affected in inflammatory diseases leads us to think, that blistering, by deriving to the skin, and producing an

effusion there, relaxes the spasm of the deeper-seated vessels. It is in this manner, most probably, that the tumor of a joint, from an infusion into the cellular texture under the skin, takes off the rheumatic pain formerly affecting that joint. Analogous to this, probably, is the good effect of blistering in continued fevers; and arises from the relaxation of the spasm of the extreme vessels by a communication of the blistered part with the rest of the skin. A blister may be employed at any period in continued fevers; but it will be of most advantage in the advanced state of such fevers, when the reaction being weaker, all ambiguity from the stimulating power of blistering is removed, and when it may best concur with other circumstances tending to a final solution of the spasm.

From this view of the matter, it will appear, that the parts of the body to which blisters ought to be applied is indifferent, except upon the suspicion of topical affection, when the blistering is to be made as near as possible to the part affected. Whether sinapisms and other *rubifacientia* act in a manner analogous to what has been supposed of blistering, may be doubtful; but their effects in rheumatism and other inflammatory diseases render it probable.

2. The other external means of taking off the spasm of the extreme vessels is warm bathing. This was frequently, and in different circumstances, employed by the ancients; but has, till of late years, been neglected by modern physicians. As the heat of the bath stimulates the extreme vessels, and, with the concurrence of moisture, also relaxes them, it seems to be a very safe stimulus, and well suited to take off the spasm affecting these vessels. It may be applied to the whole body by immersion; but this is in many respects inconvenient; and whether some of the inconveniences of immersion might not be avoided by a vapour-bath, is not yet determined by experience; but from extensive experience it appears, that most of the purposes of warm bathing can be obtained by a fomentation of the legs and feet, if properly administered, and continued for a due length of time, not less than an hour. The marks of the good effect of such a fomentation are, the patient's bearing it easily, its relieving delirium, and inducing sleep.

The following case of synocha, by *Mr. James Moore*, of London, and the remarks which accompany it, seem very well worth the reader's attention.

"Synocha, or *pure inflammatory fever*" (says Mr. Moore), "is a disease so rare in this country, that many experienced practitioners have doubted its existence. I think the following case, which I lately attended, is unquestionably an example of it.

"J. H. is thirty-one years of age; he is a tall stout man, of a florid complexion, and of a full sanguine habit. From a parti-

cular cause, he has for above a year laboured under a depression of spirits, and unfortunately he was lately terrified to a great degree. As his mind continued in a state of alarm, there is reason to believe that this was the remote cause of the fever which ensued.

"The industrious Hoffman, in enumerating the causes of fevers, mentions, first, '*vehementes animi commotiones, terror imprimis et ira.*'

"This young man, though harassed by these terrible passions, endeavoured to suppress all appearance of them; and as he was in the country, and did not complain when he first felt himself indisposed, I cannot with certainty fix the first day of the fever. Indeed, this in many cases is impossible, the beginning of diseases being often imperceptible.

"However, according to the best conjecture I can make, the fever commenced October 29th, when he perceived a chilliness all over his body: but for several days before he was unwell, and had fallen off in his appetite.

"The second day of the fever, sickness occurred, though not in such a degree as to excite vomiting, and in the night he broke out into a profuse perspiration.

"The third day, the perspiration continuing, he kept his bed, and complained of head-ach. An opening medicine was given him.

"The fourth morning he was better, and sat up in the day; but grew worse towards the evening. He started from bed during the night, and was kept in a continual state of terror, from believing he saw frightful apparitions.

"The fifth day he dressed himself, got upon horse-back, and rode to town, which was a distance of twelve miles. He complained very little, but was thought to be in a strange state.

"The sixth day I was consulted. I found him up, and when I enquired how he was, he told me he had only a pain in his forehead. His face was redder than usual, and his eyes were slightly inflamed. The expression of his countenance denoted surprise; and the answers to the questions I put to him, marked a confusion of intellect.

"His pulse was strong, hard, and beat eighty-eight strokes in a minute. The skin was hot, the tongue was moist and whitish, the urine red, with a dark sediment; the bowels regular.

"He was put to bed, and as the delirium augmented, it was found necessary to guard him carefully.

"The disease increased, though with occasional remissions, for four days: his pulse was always strong and regular, and once was perceived as high as ninety-six; his skin felt hot, and rather moist; he was disposed to constipation, was thirsty, and shewed no nausea

or want of appetite, but swallowed readily whatever was given him.

"On the tenth day he was quite furious, and could hardly be kept in bed, though strapped down, and restrained by two strong men. That night a profuse sweat broke out, and he became tranquil.

"The eleventh day I found him perspiring freely. His pulse was softened, and diminished in frequency, and his answers were rational. This proved the *crisis* of the fever; for, on the twelfth morning, his pulse had sunk to eighty, and his only complaint was weakness.

"The treatment employed during the five days he was under my charge, consisted simply of two purgatives, and a draught containing one-fourth of a grain of tartar emetic, and two drachms of the aqua ammoniæ acetatæ, which was exhibited regularly every six hours. This, I imagine, contributed to excite the critical perspiration.

"I did not venture on bleeding, because it was the sixth day of the fever before I saw him.

"His diet consisted of liquids, slightly nutritious.

"The definition of synocha given by Dr. Cullen, is 'Calor plurimum auctus, pulsus frequens, validus et durus; urina rubra, sensorii functiones parum turbatæ.' This case differed in the last characteristic; but as Dr. Cullen acknowledged that he never saw the disease, he may have erred in the description. It is also probable, that the mental derangement in this instance was much greater than usual.

"This case was so strongly marked, that there could be little danger, without gross inattention, of mistaking it for a fever of the *typhoid* kind.

"The loss of his strength was so slight, that the patient rode twelve miles on the fifth day, without appearing fatigued, or going to bed afterwards: and when the disease left him altogether, the debility was much less than what occurs after fevers in general.

"The natural functions were little disturbed: his thirst was not excessive; and he took whatever was allowed him without disgust.

"The pulse was strong and hard, the skin hot and soft; every one of which particulars is the reverse of what occurs in typhus. And the tongue, instead of having a dry, red, brown, or black appearance, was always moist, and rather white.

"As most of the functions of the body were so little disordered, *delirium* was unexpected. It commenced so early as the fourth night, and continued till the crisis with augmenting violence. Perhaps the moral causes, which it is believed operated in exciting the disease, contributed to this effect.

"The indications in this fever are very opposite from those of

typhus, it is therefore of the utmost importance that they should be discriminated.

“Synocha certainly very much resembles the symptomatic fever attendant upon phlegmon; and, therefore, it has not unnaturally been termed the inflammatory fever. The common ephemera is undoubtedly of the same species, which, notwithstanding its name, often continues three days: and the synocha seems to me precisely the same malady, in a more violent degree, and running on for a longer period.

“As many cases similar to the above have been narrated by authors, it appears strange that the reality of this disease should be now questioned.”

The author thinks with great reason, that the *attempt to simplify diseases*, and particularly fevers, has been carried to an erroneous length.

“The species” says he, “that are common in any country, are perhaps not numerous; but it is clear, from the various accounts we receive, that fevers have different symptoms, and require a different treatment in every part of the globe.”

GENUS V. TYPHUS; the *Typhous* FEVER.

Typhus Sauv. Gen. 82. Sag. 677.

I. *Typhus mitior*, or the *Slow Nervous* FEVER. Sp. I. var. 1.

Febris maligna, hectica, convulsiva, five lues νευρωδης, *Willis*, de morb. convulsiv. cap. 8.

Febris pestilens, *Fracastor.* de morb. contag. L. II. cap. 4.

Febris pestilens sine charactere veneni, *Forest.* L. VI. obs. 26.

Febris hectica pestilens, *Forest.* L. VI. obs. 32.

Febris nova ann. 1685, *Sydenham*, Sched. monitor.

Febris putrida nervosa, *Wintringh.* Com. Nosolog. ad. ann. 1720, 1721.

Febris lenta nervosa, *Huxham* on fevers, chap. 8.

Febris contagiosa, *Lind* on fevers and infection, *passim*.

Typhus nervosus, *Sauv.* sp. 2.

Typhus comatosus, *Sauv.* sp. 3.

Tritæophya typhodes Mangeti, *Sauv.* sp. 11. *Raym. Fort.* de febribus.

1. *Description.*] Of all the descriptions we have of the nervous fever, that of Dr. Huxham is perhaps the best. According to him, the patient at first grows somewhat listless, and feels slight chills and shudders, with uncertain flushes of heat, and a kind of weariness all over, like what is felt after great fatigue. This is always attended with a sort of heaviness and dejection of spirit, and

more or less of a load, pain, or giddiness of the head; a nausea and distrelth of every thing soon follow, without any considerable thirst, but frequently with urging to vomit, though little but insipid phlegm is brought up. Though a kind of lucid interval of several hours sometimes intervenes, yet the symptoms return with aggravation, especially towards night; the head grows more giddy or heavy; the heat greater; the pulse quicker, but weak; with an oppressive kind of breathing. A great torpor, or obtuse pain and coldness, affects the hinder part of the head frequently, and oftentimes a heavy pain is felt on the top all along the *coronary suture*; this, and pain of the back part of the head, generally attend nervous fevers, and are commonly succeeded by some degree of a delirium. In this condition the patient often continues for five or six days, with a heavy, pale, sunk countenance; seemingly not very sick, and yet far from being well; restless, anxious, and commonly quite void of sleep, though sometimes very drowsy and heavy; but although he appears to those about him actually to sleep, he is utterly insensible of it, and denies that he does so. The pulse during all this time is quick, weak, and unequal; sometimes fluttering, and sometimes for a few moments slow; nay, even intermitting, and then, with a sudden flush in the face, immediately very quick, and perhaps soon after surprisingly calm and equal; and thus alternately. The heats and chills are as uncertain and unequal; sometimes a sudden colour and glow arise in the cheeks, while the tip of the nose and ears is cold, and the forehead at the same time in a cold dewy sweat. Nay, it is very common, that a high colour and heat appear in the face, when the extremities are quite cold. The urine is commonly pale, and often limpid: frequently of a whey colour, or like vapid small-beer, in which there is either no manner of sediment, or a kind of loose matter like bran irregularly scattered up and down in it. The tongue at the beginning is seldom or never dry or discoloured, but sometimes covered with a thin whiteish mucus: at length, indeed, it often appears very dry, red, and chapped, or of the colour of pomegranate-rind; but this mostly at the close of the disease: yet, however dry the tongue and lips seem, the patient scarce ever complains of thirst, though sometimes of a heat in the tongue. About the seventh or eighth day, the giddiness, pain, or heaviness of the head become much greater, with a constant noise in it, or *tinnitus aurium*; which is very disturbing to the sick, and frequently brings on a delirium. The load on the præcordia, anxiety and faintness, grow much more urgent; and they often fall into an actual deliquium, especially if they attempt to sit up; cold sweats suddenly come out on the forehead, and on the backs of the hands (though at the same time there is too much heat in the cheeks and palms); and as suddenly go off. If the urine now grows more pale and limpid, a delirium is certainly to be expected, with universal tremors

and *subfultus tendinum*; the delirium is seldom violent, but as if were a confusion of thought and action, muttering continually to themselves, and faltering in their speech. Sometimes they awake only in a hurry and confusion, and presently recollect themselves, but forthwith fall into a muttering dozy state again. The tongue grows often very dry at the height, especially in its middle part, with a yellowish list on each side, and trembles greatly when the sick attempts to put it out. Frequently profuse sweats pour forth all at once, about the ninth, tenth, or twelfth day, commonly coldish and clammy on the extremities; oftentimes very thin stools are discharged, and then nature sinks apace; the extremities grow cold, the nails pale or livid; the pulse may be said to tremble and flutter, rather than beat, the vibrations being so exceeding weak and quick that they can scarce be distinguished; though sometimes they creep on surprisngly slow, and very frequently intermit. The sick become quite insensible and stupid, scarce affected with the loudest noise or the strongest light; though, at the beginning, strangely susceptible of the impressions of either. The delirium now ends in a profound coma, and that soon in eternal sleep. The stools, urine, and tears, run off involuntarily, and denounce a speedy dissolution, as the vast tremblings and twitchings of the nerves and tendons are preludes to a general convulsion, which at once snaps off the thread of life. In one or other of these ways are the sick carried off, after having languished for fourteen, eighteen, or twenty days; nay, sometimes much longer. Most patients grow deaf and stupid towards the end of this disease (some extremely deaf), though too quick and apprehensive at the beginning, insomuch that the least noise or light greatly offended them. Many, from their immoderate fears, seem to hurry themselves out of life, where little danger is apparent at the beginning; nay, some will not allow themselves to sleep, from a vain fear of dozing quite away; and others from the vast hurry, anxiety, and confusion they are sensible of either during sleep or at their waking.

2. *Causes of, and persons subject to, the disorder.*] The nervous fever is most frequently the consequence of contagion. It most commonly attacks persons of weak nerves, a lax habit of body, and a poor thin blood; those who have suffered great evacuations, a long dejection of spirits, immoderate watchings, studies, fatigue, &c.; also those who have used much crude unwholesome food, vapid impure drinks, or who have been confined long in damp foul air; who have broken the vigour of their constitutions by salivations, too frequent purging, immoderate venery, &c. Hence we see how the disease is connected with an extreme debility of the nervous system; for, when people are prepared for this fever by having their nerves already weakened, the contagious particles immediately attack the nervous system, without so much affecting

the state of the blood or juices, though the latter are greatly affected in the putrid malignant fever.

3. *Prognosis.*] In nervous fevers, the prognosis is very much the same with that of the putrid malignant kind. And although death be not so frequent as in that modification of fever, yet it may justly be considered as very fatal.

4. *Cure.*] As this fever is produced by a contagion affecting the nervous system of a person already debilitated, and thus producing weakness in an extreme degree, we have now occasion to consider Dr. Cullen's *two indications* of cure omitted under the *Synocha*; namely, to remove the cause and obviate the effects of debility, and to correct the putrescent tendency of the fluids; for though in the beginning of nervous fevers the tendency to putrefaction be not remarkable, it becomes exceedingly great towards their conclusion.

α. In answering the first indication, Dr. Cullen observes, that most of the sedative powers inducing debility cease to act soon after they have been first applied; and therefore the removing them is not an object of the present indication. There is only one which may be supposed to continue to act for a long time, and that is the contagion applied; but we know nothing in the nature of contagion that can lead us to any measures for removing or correcting it. We know only its effects as a sedative power inducing debility, or as a ferment inducing a tendency to putrefaction in the fluids, the former of which at present falls under our consideration. —The debility induced in fevers by contagion, or other causes, appears especially in the weaker energy of the brain; but in what this consists, or how it may be restored, we do not well know; but as nature, seemingly for this purpose, excites the motion of the heart and arteries, we must ascribe the continuance of the debility to the weaker reaction of the sanguiferous system: the means, therefore, which we employ for obviating debility, are immediately directed to support and increase the action of the heart and arteries; and the remedies employed are tonics or stimulants.

In contagious diseases we know, both from the effects which appear, and from dissections, that the tone of the heart and arteries is considerably diminished; and that tonic remedies are therefore properly indicated. We are to consider these remedies as of two kinds: 1. The power of cold; 2. That of tonic medicines.

The power of cold as a tonic in fevers may be employed in two ways: either as thrown into the stomach, or as applied to the surface of the body. As we have already observed, that the power of cold may be communicated from any one part to every other part of the system, so it will be readily allowed that the stomach is a part as fit as any other for this communication, and that cold drink taken into the stomach may prove an useful tonic in fevers. This the

experience of all ages has confirmed; but at the same time it has been frequently observed, that, in certain circumstances, cold drink taken into the stomach has proved very hurtful; and therefore that its use in fevers requires some limitations. What these limitations should be, and what are all the circumstances which may forbid the use of cold drink, it is difficult to determine; but it seems clearly forbidden in all cases where a phlogistic diathesis prevails in the system, and more especially when there are topical affections of an inflammatory nature.

The other method of employing cold as a tonic, is by applying it to the surface of the body, as a refrigerant power fit to moderate the violence of reaction; but probably it may here also be considered properly as a tonic, and useful in cases of debility. Not only cool air, but cold water also may be applied to the surface of the body as a tonic. The ancients frequently applied it with advantage to particular parts as a tonic; but some consider it a discovery of modern times, that, in the case of putrid fevers attended with much debility, the body may be washed *all over* with cold water. This was first practised at Breslaw in Silesia, as appears from a dissertation under the title of *Epidemia Verna, quæ Wratislaviam anno 1737 afflixit*, to be found in the *Acta Nat. Curios.* vol. x. And from other writers it seems, that the practice passed into some of the neighbouring countries; but in this island it does not appear that we had any experience of it till an account appeared of the experiments made at the Liverpool infirmary by Dr. Currie. These, as we shall presently shew, have led to other trials, most of which have proved strongly recommendatory in their results, though not uniformly successful.

The first author who notices the use of water in diseases, together with almost every thing important to the science of medicine, is Hippocrates, who appears to have been a strenuous advocate for the use of it, both as an internal and external remedy. It may be remarked, however, that Hippocrates in his account of epidemics, which is wholly employed in treating upon fevers, delivers the particular history of the disease, and rarely mentions the remedies. We are therefore not able confidently to decide, whether he always used the cold affusion in cases of fever; although we may conclude that it was not neglected or disregarded by him, since we find in Case 7, book 1, the patient drank largely of cold water, and had it poured upon his head, which moderated the delirium, and he became rational and recovered, having at the same time a critical hæmorrhage from the nose. Sir John Floyer, in his *Psychrolusia, or History of Cold Bathing*, has observed, that Hippocrates describes, in his Aphorisms, the virtues of hot and cold water, without mentioning affusions, fomentations, or baths; but the *το ψυχρὸν* or *το θερμὸν*, relate to all of them equally. The term used by Hippocrates is *κατὰκλυσμος* or *καταχυσσις*, which signi-

ties perfusion, or affusion, and was performed by a servant, who poured the water upon those persons who were recommended to try its effects in various diseases; and the same virtues are ascribed by him to this method as to cold baths. If the internal use of cold water was only known to Hippocrates, he would not have given directions about affusions, lotions, and fomentations, as he has done in his tracts upon the use of liquids, and upon the diet in acute diseases; and especially as the latter part of the tract *De liquidorum usu*, is entirely upon the effects of *καταχυσις*, or affusion. Besides, it seems probable that he was well acquainted with the necessary cautions to be attended to in applying the affusion, since, to supply the deficiency of thermometrical observations, he advises the skin of the patient, or of the person who pours on the water, to be the criterion of the degree of cold or heat; and he cautions against proceeding to any great excess, which might prove injurious. In the cure of typhus he advises to refrain from immersion for the first few days, but recommends cloths wetted with cold water to be applied where the patient complains most of heat; which method answers to the "*lavatio frigida*," as practised by Dr. Gregory at Edinburgh. Hippocrates, after mentioning the advantages of drinking and bathing in cold water, observes that it produces more powerful effects by affusion, *δυνατωτερον καταχειν*; and as he has studiously avoided the appearance of empiricism, by combining reasoning with events, he thought the cold water produced heat and sweat, and that the heat cured the diseases for which the use of water was most effectual.

Although Asclepiades, Celsus, Galen, and many other old authors, have noticed the use of cold water, it does not appear that they generally understood the affusion of it upon the surface of the body, or that such a mode of applying it was in great repute among them. Yet we find Aretæus, in his chapter *De curatione Phreniticorum*, advises the liberal affusion of cold water upon the patient; and Galen also practised ablution in ardent fevers; and in *Lib. x. De Methodo Medendi*, he has laid down rules for the proper application of it. And other writers have recommended in vertigo and inveterate head-achs, "*ut caput frigidâ aquâ perfundant*." The antiquity of the external application of cold water may perhaps be further illustrated by the relation of Augustus Cæsar's case, as mentioned in his life by Suetonius: "*Cum etiam distillationibus jecinore vitato ad desperationem reductus, contrariam et ancipitem rationem medendi necessario subiit, quia calida fomenta non proderant, frigidis curari coactus, auctore Antonia Musâ.*"—Sueton. lib. ii.

History informs us that the American Indians have always practised cold immersion for the cure of fevers, to which they are particularly subject; nor is this practice confined to warm climates, since the northern nations make use of that custom both for the

prevention and cure of diseases. The affusion and ablution of the body might first take its origin from the custom of purifying the body with water, in great esteem among the patriarchs, and imitated from them by the Egyptians, Greeks, and Romans; and the use of it, probably, became more general at the introduction of Christianity, when the ceremony of baptism was universally practised by what was called the trine immersion, or by placing the persons in the font and pouring water on their heads and bodies three times. In a work published about the beginning of the present century, entitled *Psychrolusia, or History of Cold Bathing*, by Sir John Floyer and Dr. Baynard, the use of cold water applied to the surface of the body is much recommended and insisted upon for the cure of almost all diseases; and although that book partakes too much of what would justly be called medical enthusiasm, yet it contains many important facts and useful observations. It seems rather remarkable that Dr. Currie should not have referred to this book among others which he has noticed, since it would have furnished some striking facts of no small consequence to his ingenious theory and judicious practice. Dr. Baynard mentions many cases of persons who have leaped into a pond, or any other water, in their delirium from fevers, and not one ever received any harm, but were thereby presently cured. And he adduces instances of maniacal persons being plunged into cold water, and having ten or twelve pails of water thrown over them during the paroxysm of insanity; and refers to a remarkable case related by Dr. Willis, in his *Chapter de Delirio & Phrenitide*, where the same means were used with equally good success. No other work of importance, concerning the application of cold water to the human body, appeared till the year 1785, when an ingenious essay was published by Mr. Rigby, of Norwich, "*On the Theory and Production of Animal Heat, and its Application in the Treatment of Diseases.*" As far as relates to the simple abstraction of heat from the surface, the author of that Essay seems to have said as much as has been since repeated by Dr. Currie and others; and the observations it contains upon the treatment of cutaneous diseases (especially small-pox, scarlatina, and measles, and local inflammations) are valuable, and deservedly claim attention. Hence it appears, that the external use of cold water has been known and practised from the earliest periods down to the present time; and this practice has not arisen as the mere suggestion of hypothesis, or the product of speculative enquiry, but has been established and confirmed by long experience. Yet, after all that can be found in ancient authors upon the affusion in fevers and other diseases, it will be readily acknowledged that their practice was unconfirmed, and the conclusions drawn from their experience were vague and uncertain. And it will be as readily acknowledged, that we are greatly indebted to Dr. Currie, who, by a diligent investigation, conducted with judgment and

accuracy, has corrected the errors and supplied the defects of preceding writers, and has been a valuable agent in establishing the use of a remedy in the art of medicine, endued with the most efficacious properties, and admirably calculated to produce the greatest benefit to all mankind.

We shall now adduce, from recent publications on the subject, the different testimonies of medical men with regard to the efficacy of this practice. Dr. Garnett, professor of Natural Philosophy and Chemistry in the Royal Institution, publishes the following remarks in the *Medical and Physical Journal*.

“No greater improvement has lately taken place in medicine than in the treatment of Fevers, by the external use of cold water; a mode which was first, I believe, practised by Dr. Wright, but since elucidated by the acute reasoning and confirmed by the experience of Dr. Currie. I have several times witnessed, not without some degree of astonishment, the wonderful efficacy of this plan; and I only presume to state a few facts, with a view of drawing the attention of the faculty in Britain to this point; for, though the plan is used by some very judicious practitioners, it is by no means general. I am, however, convinced from experience, that there are few cases of *typhus* in which the pulse exceeds 100, where the skin is dry, and its heat considerably above the natural heat of the human blood (circumstances which ought to be diligently attended to), where a cure may not speedily be effected by it, provided it be employed within the first six or eight days from the attack of the fever. Among many other cases, I shall only give the following:

“I was desired to visit Mr. T. a respectable manufacturer in Glasgow, who laboured under a mild kind of typhus, from which, however, he did not recover so quickly as was expected. It was on the twentieth day of the fever that I saw him, and I prescribed for him the oxymuriat of potash, a remedy which I have been in the habit of using in this complaint for some years with great success. He grew better daily; but before he was perfectly recovered, Mrs. T. who had given him almost constant attention, was attacked with symptoms of fever; I did not see her till the third day after the attack, when I found her pulse not less than 130; the heat of her skin 106°, without any moisture; her eyes had a considerable degree of wildness, and her tongue was quite brown and parched. In short, I think I had never seen the disease at the same period attended with worse symptoms.

“As this seemed a case exactly adapted to the plan laid down by Dr. Currie, I proposed it to the surgeon who attended her along with me, a very intelligent practitioner, who immediately assented to it. She was directed to be taken out of bed, and placed in a large tub on a stool, and a large bucket of cold water, in which about a pound of common salt had been dissolved, was thrown

upon her; her skin was immediately wiped dry, and she was put to bed. In about ten minutes afterwards I went into the room, and found the pulse 94; the heat of the skin 96° . On asking her how she felt herself, she replied, as well as ever she was in her life: I left her, directing the affusion to be had recourse to again if the febrile symptoms returned during the night. I saw her the next morning, and found her without any fever, of which she had no return.

“Another patient on whom I tried this remedy, was Miss R. aged 17. She had taken the infection from her brother, who had recovered very slowly from a typhus of the worst kind. She was attacked with shivering, succeeded by great heat, and pain in the back; her pulse was 128; the heat of the skin 102° , and dry; her tongue parched and brown, though not quite so bad as in the former case. The cold water was used in the same manner, and in a quarter of an hour the febrile symptoms had vanished; the pulse was under 100, and the heat of the skin natural. The febrile symptoms, however, returned in about six hours, but went off on repeating the affusion; they returned again in the course of the next day, but were again overcome; she was obliged to use the affusion five times; but at last, after forty-eight hours from the first affusion, the complaint had totally left her.

“Two days after this, another brother of Miss R.’s was seized with symptoms of fever, in which the heat of the skin, pulse, and tongue, were much the same as in his sister’s case; and he was delirious, constantly wishing to go to the grammar school to receive a prize to which he was entitled. The affusion was used in the same manner as in the preceding cases; the febrile symptoms immediately vanished—the delirium left him—his pulse and heat became natural—he fell into a sound sleep—perspired profusely; and in the morning found himself so well, that I am pretty sure he did go to the grammar school to claim his prize.”

“From various opportunities (says Mr. Schaw, a Navy Surgeon) which I have had of observing this method of treatment, and from having frequently put its effects to the test myself, I feel fully warranted in asserting that, in every case where it is judiciously employed, its efficacy will invariably be evinced. In country practice, when the general affusion could not be used on account of the prejudices of the lower order of men, I have seen different instances, where even the partial application of cold water to the face, neck, breast, and arms, was of infinite service, and, indeed, I hardly ever saw it used without some very palpable advantage arising.”

This writer farther remarks, that in three cases which fell under his own inspection, where catarrhal symptoms attended the fever, the cold ablution appeared to do evident mischief, by increasing the cough, and consequent irritation, to such a pitch as almost totally.

precluded rest; which, of necessity, led to a discontinuance of the remedy. Mr. Schaw relates the following case:

"A. M. a sailor, ætat. 30, of a robust healthy constitution, was attacked, on the 22d of October last, with all the usual symptoms of fever, which he attributed to cold. He had an emetic given, which operated very well as such, but produced no other sensible effect. On the 23d, in the morning, his pulse was 116 in the minute, his skin very hot; he had great thirst, and complained of severe head-ach: had a stool during the night. My hand acted the part of a thermometer, and I directed the application of cold water, which was performed while I felt his arm with one hand, and held my watch in the other to mark the change I expected. The affusion was scarce finished when his pulse fell to 90; he was then dried and put to bed. I visited him in half an hour, pulse 92, and regular, skin cool, head-ach much relieved, and he felt wonderfully refreshed. Six o'clock, P. M. pulse 100, heat above natural, head-ach increased since the afternoon. The operation was repeated with the same effect as in the morning, reducing the pulse to 70. In an hour afterwards, when I again visited, he said he felt 'very easy,' his head-ach was nearly removed, and the heat of his skin was very little, if at all, above natural; I ordered an opiate to be given at bed-time.

"24th. Eight o'clock, A. M. pulse 76; slept well during the night, has little head-ach, skin very little above natural heat; had a stool this morning.

Repetatur affusio aquæ frigidæ.

"7 P. M. Pulse 72, skin of natural heat, no head-ach; has been walking about great part of the afternoon, and says he feels 'quite strong.' No farther application was necessary.

"D. L. ætat. 25, of a healthy and strong constitution, was attacked, in the night of the 21st of February last, with cold shivering, followed by increased heat, head-ach, nausea, and slight vomiting. I saw him about nine next morning. The vomiting had ceased; the nausea was likewise gone; pulse 112, and strong; skin hot: face flushed; breathing a little hurried, but without pain of the breast, or cough; head-ach very acute; tongue clean, of a bright red colour; much thirst. I ordered, and saw performed copiously, the cold affusion. The shock was considerable, but the effect almost instantaneous. The pulse immediately fell to 80, and the head-ach was greatly relieved.

"At one the pulse was 90, and the heat above the natural standard: I repeated the remedy; which succeeded so well, that in the evening the head-ach was removed, the skin of natural heat, and he recovered without any farther application.

"These two cases, I think, shew pretty pointedly the advantage of an early employment of this simple and useful remedy. I have made use of it too in the more advanced stages of typhus, and, I

think, with very happy effects. It evidently mitigated the violence of the febrile symptoms, and appeared to suppress the tendency to delirium; and although the disease generally ran out its course, yet it seemed to assume a milder form, and to be attended with less danger, when this treatment was adopted."

Mr. Martineau, of Norwich, gives his testimony to the utility of cold affusions in typhus, in the following terms:

"In November, 1798 (says he), a young man, a farmer, about twenty years old, living four miles from Norwich, came to me, complaining of great lassitude, head-ach, loss of appetite, and costiveness; he had a quick tremulous pulse; great dejection was marked in his countenance, and, in short, every appearance of typhus. This was on a Thursday, and he had been complaining from the preceding Saturday. He was much fatigued with his ride, and it was with difficulty he returned home. I ordered him an emetic to be taken that evening, and a gentle dose of opening medicine for the following morning. I heard no more of him until the Saturday, when I was requested to go over to him. I found him at six that evening with every symptom growing worse, and his debility much increased. I prescribed a drachm of bark, to be given every two hours, and an opiate at bed-time.

"Sunday evening his pulse was 110, his tongue clear, skin hot and dry, his weakness greater. He had taken the bark very regularly, which I desired might be continued, as well as his opiate at bed-time.

"Monday, at six in the evening, pulse as yesterday, heat pungent, head-ach with wandering, but not absolutely delirious, his strength less. The bark had purged him, notwithstanding laudanum had been given twice, besides the night draught.

"In this state, with the bark purging, and the disease making an alarming progress, I determined, although I was unable to measure his heat, and too far from home to wait for a thermometer, to make trial of the affusion of cold water. My patient was taken out of bed, and while he was supported, standing naked in a tub, I poured the largest hand-bason of pump water all over him. The shock was considerable to him, and the father and mother, who were present, thought, I believe, I should be the death of their son. He was wiped dry, and immediately returned to bed—his pulse then beat only 70—he was cool, and said he had not felt himself so comfortable, and particularly in his head, for many days. Much pleased with this effect, but uncertain whether it would last, I went down stairs, and waited an hour; on my return to him, his pulse had not quickened, nor had the heat returned. I left orders to repeat the cold water, if he became hot during the night, but there was no occasion for it; he slept well, and had a gentle perspiration; and although I daily intended repeating the affusion, had the heat returned, I never found it necessary. His symptoms seem-

ed at once arrested, but continued in a slight degree until the 14th day, when his appetite and natural sleep returned, and he soon after recovered his strength and health.

"I should mention, that from the evening in which the affusion was used, I only ordered two or three smaller doses of bark in a day, conjoined with a few drops of laudanum to check the purging, and twenty-four drops at night until the 14th day, when all medicine was laid aside. The bark, in such a small quantity, can scarcely be supposed to have contributed to the recovery of this patient; and I will add, that in the largest quantity, I never saw it of service, either in stopping of typhus, or moderating the symptoms, unless given in the first two or three days, when I know it will often put a stop to the disease; but it must be given with the same assiduity as is required to check the return of a true intermittent. It is the time of giving as well as quantity of bark, which must render it successful in typhus.

"Dr. Currie in his admirable work mentions, that he finds the greatest benefit from affusion, when used in the first days of fever; and this I believe, for the very reason which makes the bark, and some other remedies, chiefly useful in the commencement, viz. that if the disease has had time to obtain its true character, or, in the language of Dr. Darwin, 'the morbid febrile catenation is strongly formed,' it will go on its own duration, in spite of our efforts to stop its natural termination. In my patient, however, the affusion was not tried till the ninth day; still the sudden impression made by it was so powerful as to produce such a mitigation of every symptom as to leave no farther apprehension for his safety, although no positive crisis came on before the fourteenth day, when the appetite and sleep marked the conclusion.

"In January, 1799, the Lincolnshire Militia were quartered in this city; their barracks were terribly crowded, ill ventilated, below the surface of the ground, and damp; the weather was extremely cold, and the men, after parade, frequently complained of having caught cold. After a short time the disease put on a mixed character of typhus and peripneumonia, the peripneumonia putrida of Sauvages, and many died. I was requested at this time by the colonel, Lord Buckinghamshire, and Mr. Cooper, the surgeon of the regiment, who had been indefatigable in his attention to the men, to visit the hospital, which was a small house, in which were thirty. in all the stages, from an alarming commencement to a fatal conclusion. Two were brought in the evening, while I was there, who had been ill a *few days* only; and as there was considerable heat on the skin, I recommended the affusion, which was immediately complied with. The pulmonic symptoms might have been considered an objection to the trial, but the fatality of the disease led me to adopt a practice, which at first I should not have had courage to have employed. In these cases no very *immediate* relief was

given, but both the men recovered with less severe symptoms than most of their comrades; blisters, however, were applied to them, which had not been used in the other cases. I have mentioned these two cases, to shew that even with pneumonic affection there arose no inconvenience from the application of cold water. An immediate stop was put to the contagion by the men being, the day after my visit, sent out of the barrack to separate houses."

In March last, a pupil of Mr. Martineau's visited a poor boy, ten years old, who was in the fifth day of a typhus, four of which he had been confined to his bed. He at first gave him an emetic, and some bark; but not finding him better the following evening, he applied the *affusion of cold water*, during the hot stage of the evening exacerbation. The pulse immediately fell from 120 to 98, the head-ach and heat were greatly diminished, and some sleep and a gentle perspiration followed. The affusion was used the next day at noon, and again at night, with the same advantage, and once more the following evening. On the 9th day, the fever terminated, and the boy rapidly recovered, having taken no medicine after the application of the water.

"A fortnight afterwards, a brother of the above, aged eight years, was seized with the same fever; the affusion was applied on the *second* day with the greatest advantage, as he had no return of fever for four days, when some cold winds blowing upon him in bed, produced a relapse; the symptoms were more violent, and delirium and coma were added. On the evening of the second day of the second attack, when the heat was very considerable, cold water was thrown all over him, and with an astonishing good effect, for he had no return from that time, and soon recovered, without having taken any medicine during the whole period of the disease.

"On the 8th of May, the sister of the two boys, a girl of six years, was attacked with typhus, but with symptoms less violent. The affusion was applied twice at the commencement of the fever, and she soon recovered without any medicine."

The above cases cannot but prove an additional inducement to the practice they are intended to establish. Many circumstances, however, ought to be taken into consideration before its general application; and we cannot do better than refer such of our readers as have not already perused Dr. Currie's work, to the following cautionary remark in the book itself.—"*Affusion may be safely used at any time of the day, when there is no sense of chilliness present, when the heat of the surface is steadily above what is natural, and when there is no general or profuse perspiration.*"

The medicines which have been employed in fevers as tonics are various. If the metallic salts have been found useful, it is owing probably to their tonic properties alone. The preparations of copper, from their effects in epilepsy, are presumed to possess a tonic

power; but whether their use in fevers be founded on their tonic or emetic powers, is uncertain. Upon the whole there may, no doubt, occur some instances of fevers being cured by tonics taken from the mineral kingdom; but the vegetable tonics are the most efficacious, and among these the Peruvian bark certainly holds the first place.

The bark has commonly been considered as a specific, or a remedy of which the operation was not understood. We must observe, however, that, as in many cases the effects of the bark are perceived soon after its being taken into the stomach, and before it can possibly be conveyed to the mass of blood, we may conclude, that its effects do not arise from its operating on the fluids; and must therefore depend upon its operating on the nerves of the stomach, and being thereby communicated to the rest of the nervous system. This operation seems to be a tonic power, the bark being a remedy in many cases of debility, particularly in gangrene: and if its operation may be explained from its possessing a tonic power, we may easily perceive why it is improper when a phlogistic diathesis prevails; and from the same view we can ascertain in what cases of continued fever it may be admitted. These cases are either where considerable remissions have appeared, when it may be employed to prevent the return of exacerbations, on the same footing as it is used in intermitting fevers; or in the advanced state of fevers, when all suspicion of an inflammatory state is removed, and a general debility prevails in the system; and its being then employed is sufficiently agreeable to the present practice.

Another set of medicines to be employed for obviating debility and its effects, are the direct stimulants. These, in some measure, increase the tone of the moving fibres; but are different from the tonics, as they more directly excite and increase the action of the heart and arteries. This mode of their operation renders their use ambiguous; and when an inflammatory diathesis is present, the effects of stimulants may be very hurtful; but it is still probable, that in the advanced state of these fevers, when debility prevails, they may be useful.

Of all the stimulants which may be properly employed, wine seems to be the most eligible. It has the advantage of being grateful to the palate and stomach, and of having its stimulant parts so much diluted, that it can be conveniently given in small doses; and therefore it may be employed, with sufficient caution; but it is of little service unless taken pretty largely. It may be suspected that wine has an operation analogous to that of opium; and on good grounds. But we can distinctly remark its stimulant power only; which renders its effects in the phrenitic delirium manifestly hurtful; and in the mild delirium, depending on debility, as remarkably useful.

β. We must now proceed to the other indication of cure, namely, to correct or obviate the tendency in the fluids to putrefaction. This may be done, 1. By avoiding any new application of putrid or putrescent matter. 2. By evacuating the putrid or putrescent matter already present in the body. 3. By correcting the putrid or putrescent matter remaining in the body by diluents and antiseptics. 4. By supporting the tone of the vessels, and thereby resisting further putrefaction, or obviating its effects. 5. By moderating the violence of reaction, considered as a means of increasing putrefaction.

The further application of putrid or putrescent matter may be avoided, 1. By removing the patient from places filled with corrupted air. 2. By preventing the accumulation of the patient's own effluvia, by a constant ventilation, and by a frequent change of bed-clothes and body-linen. 3. By the careful and speedy removal of all excremental matters from the patient's chamber. 4. By avoiding animal food.

The putrid or putrescent matter already present in the body, may be evacuated partly by frequent evacuation of the contents of the intestines; and more effectually still by supporting the excretions of perspiration and urine by the plentiful use of diluents. That which remains in the body may be rendered more mild and innocent by the use of diluents, or may be corrected by the use of antiseptics, as the vegetable acids, &c. These last are of many and various kinds; but which of them are conveniently applicable, or more particularly suited to the case of fevers, is not well ascertained. Those most certainly applicable and useful are acescent aliments, acids of all kinds, and neutral salts.

The progress of putrefaction may be considerably retarded, and its effects obviated, by supporting the tone of the vessels; and this may be done by tonic medicines, of which the chief are cold, and the Peruvian bark, as already mentioned. The violence of reaction increasing the tendency to putrefaction, may be moderated by the means already mentioned under *synocha*.

These are the proper indications to be observed in the cure of the slow nervous fever. Some of the best writers have observed, that evacuations (especially bleeding) are improper even at the beginning. Even a common purgative given at this time hath been followed by surprising languors, syncope, and a train of other ill symptoms. However, it is generally necessary to cleanse the stomach and primæ viæ by a gentle emetic, a mild laxative, or a dose of calomel. The following suitable formula we find in the pharmacopœia of St. Thomas's hospital under the name of *Hauftus solutivus*.

(No. 31.) ℞ Salis cathart. amar. ʒvj.

Aquæ fontis ʒiij.

Tinct. Sennæ ʒvj. fiat Haustus.

Half of this will usually prove sufficient, but if not, the rest may be taken in the course of an hour. Sometimes it may be proper to evacuate the stomach and bowels at the same time; but this should never be attempted except in the first attack of fever. For this purpose:

(No. 32.) ℞ Calomelanos gr. iij.
Pulv. Antimonial. gr. v.
Cons. Cynosbat. q. s.

Misce fiat Bolus.

Indeed, where nausea, sickness, and load at the stomach, are urgent, as is frequently the case in the beginning of this fever, a vomit is necessary; (Vide Formula, No. 1.) ; and after it Dr. Fordyce recommends the following to be given when the patient is warm in bed:

(No. 33.) ℞ Aq. Menth. vulg. vel Cinnam. Ten. vel Alexit.
simpl. ℥iss.
Tinct Opii, gtt. x. ad xxv. vel
Syr. Diacod. ℥jss. ad ℥vi.
Aq. Menth. Spir. vel
Nuc. Mosch. vel
Cinnam. Spir. ℥ij.
Syr. Moror. ℥ij. Misce.

Clysters of milk, sugar, and salt; or the following directed by Dr. Fordyce:

(No. 34.) ℞ Decoc. commun. pro Clysm. ℥viij. ad ℥xiv.
Elect. Sennæ ℥vj. ad ℥jss. vel Sal. Glaub. ver. ℥ss.
ad ℥j.
Ol. Lini ℥jss. M. Ft. Enem. pro re nata vesp.
injie.

may be injected with safety and advantage every second or third day, if nature wants to be prompted to stool. The temperate, cordial, diaphoretic medicines, are certainly, according to this author, most proper in these fevers. Dr. Fordyce directs the following:

(No. 35.) ℞ Aq. Menth. vulg. ℥jss.
Alk. Vol. Fix. Succ. Limon, satur. ℥j.
Pulv. Contrayer. comp. gr. xv. ad ℥ss.
Syr. Croci
Aq. Menth. Piper. } aa ℥jss.

M. Ft. Haust. Capt. quartâ quâque horâ.

If the head should be much affected towards the beginning, a blister applied to it, or the back, often diminishes the whole fever, and relieves this symptom.

A well-regulated, supporting, diluting diet is necessary, and will of itself, if judiciously managed, go a great way in the cure, especially assisted by a due care to keep the patient as quiet as possible both in body and mind.—But it should be noted, that any

strong opiates are commonly very pernicious, however much the want of sleep and restlessness may seem to demand them. Mild diaphoretics, such as neutral draughts or elixir paregoricum, have much better effects. These by raising a gentle easy sweat, or at least a plentiful perspiration, calm the hurry of the spirits, and a refreshing sleep ensues. Where the confusion and dejection of spirits are very considerable, blisters have been advised to be applied to the neck, occiput, or behind the ears, and during all this a free use of thin wine-whey, some pleasant ptisan or gruel, with a little soft wine, must be indulged in. Indeed the patients, in this case, should drink frequently: though such quantities may not be necessary as in the ardent, or even putrid malignant fevers, yet they should be sufficient to carry on the work of dilution, support the sweats, and supply the blood with fresh and wholesome fluids, in place of that noxious matter which is continually passing off. In this view also a thin chicken-broth is of service, both as food and physic, especially towards the decline of the disease; and for the same reason thin jellies of hartshorn, sago, panada, are useful, adding a little wine to them, and the juice of Seville orange and lemon.

Dr. Fordyce advises that if by any of these means the fever is carried off, it should be prevented from recurring by

(No. 36.) ℞ Pulv. Cort. Peruv. ʒss. ad ʒj. Ft. Pulvis.
Vel, Cum Syr. Croc. q. s. Ft. Bolus.

Vel, (No. 37) ℞ Aq. Alexit. ʒiſs
Pulv. Cort. Peruv. ʒss. ad ʒj.
Syr. e Cort. aur. }
Aq. Cort. aur. Spir. } aa ʒij.

Ft. Haust. Omne horâ sumendus.

: It is observable, that the sick are never so easy as when they are in a gentle sweat; for this soon removes the hurry of spirits, exacerbations of heat, &c. But profuse sweats should never be encouraged, much less attempted, by very strong heating medicines, especially in the beginning or advance of the fever; for they too much exhaust the vital powers, and are followed by a vast dejection of spirits, tremors, startings of the tendons, and sometimes end in rigors, cold clammy sweats, syncope, or a comatose disposition. Sometimes irregular partial heats and flushes succeed, with great anxiety, restlessness, delirium, difficulty of breathing, and a vast load and oppression in the præcordia, so as to incline the less cautious observer to think there may be something peripneumonic in it; but even here we must beware of bleeding, as the pulse will be found very small and unequal, though very quick. Nor is bleeding contra-indicated only by the weakness and fluttering of the pulse, but also by the pale, limpid, and watery urine which is commonly attendant. These symptoms denote the load, anxiety, and oppression on the præcordia to

proceed from an affection of the nervous system, and not from a peripneumonic obstruction or inflammation. The breathing in this case, though thick and laborious, is not hot, but a kind of sighing or sobbing respiration, nor is there often any kind of cough concomitant; so that it has been conjectured to proceed from some spasm on the vitals. Here therefore the nervous cordial medicines are indicated, and blisters to the thighs, legs, or arms. Dr. Huxham commonly used the following bolus and saline draught.

(No. 38.) ℞ Pulv. contrayerv. comp. gr. xv.

Confect. Raleigh. ℥j.

Syr. Croci q. s. M. f. Bolus.

(No. 39.) ℞ Ammoniac præp. ℥ss.

Succ. limon. ℥iij.

Aq. Menthae simpl. ℥iss. M. *Peraeta effervescentia*,

adde Sp. lavend. c. Syr. croc. ana ℥iss. M. f. Haust.

If great tremors and *subfultus tendinum* came on, he substituted half a scruple of musk instead of the contrayerva in the bolus, with advantage.—One or other of these, or similar prescriptions, are to be taken every fifth, sixth, or eighth hour, and a temperate cordial drink may be now and then made out of thin wine or cyder whey, or, which is in many cases better, out of mustard-whey; which last is by no means a contemptible medicine. The saline draught made as above is much more apt to pass through the pores of the skin than when made with salt of tartar, which rather moves through the urinary passages.

The above-mentioned difficulty of breathing, anxiety, and oppression, many times precede a miliary eruption, which often appears on the seventh, ninth, or eleventh day of the fever, and sometimes later. Indeed great anxiety and oppression on the præcordia always precede pustular eruptions of any kind in all sorts of fevers. This eruption should be promoted by soft easy cordials and proper diluents; to which should be sometimes added some gentle aromatics. These tend to calm the universal uneasiness commonly complained of, and also very effectually promote a diaphoresis, or kindly breathing sweats, with which the miliary eruptions freely and easily advance. But however advantageous these commonly are, profuse sweats are seldom or never so, even though attended with a very large eruption. Two or three crops of these miliary pustules have been known to succeed one another, following profuse sweats, not only without advantage, but with great detriment to the patients, as they were thereby reduced to an extreme degree of weakness; so that they may justly be reckoned symptomatic rather than any thing else, and the consequent eruption is often merely the symptom of a symptom; for the miliary glands of the skin appear very turgid, and exhibit a rash, after profuse sweating, even in the most healthy.

In these profuse colliquative sweatings a little generous red wine (diluted somewhat, if necessary) may be given with the greatest advantage; as it presently moderates the sweats, supports the patient, and keeps up the miliary pabulæ if they happen to attend. Towards the decline of the fever also, where the sweats are abundant and weakening, small doses of the tincture of the bark with saffron and snake-root were given with the greatest advantage, frequently interposing a dose of rhubarb to carry off the putrid colluvies in the first passages; which usually makes the remissions or intermissions that often happen in the decline of nervous diseases more distinct and manifest, and gives a fairer opportunity of throwing in the bark; for in the proper exhibition of this medicine we are to place our chief hope of curing both the nervous and putrid malignant fevers.

II. Typhus gravior, or the *putrid, pestilential, or malignant* FEVER. Sp. I. var. 2.

Febris pestilens, *P. Sal. Divers.* de febre pestilenti.

Febris pestilens Ægyptiorum, *Alpin.* de med. Ægypt. l. i. cap. 14.

Typhus Ægyptiacus, *Sauv.* sp. 6.

Febris pestilens maligna, *Sennert.* de febribus, l. iv. cap. 10.

Febris maligna pestilens, *River.* l. xvii. sect. iii. cap. i.

Febris pestilens maligna, ann. 1643. *Willis,* de febribus, cap. 15.

Typhus carcerum, *Sauv.* sp. 1.

Febris nautica pestilentialis, *Huxham* de aëre ad ann. 1740.

Miliaris nautica, *Sauv.* sp. g.

Febris putrida contagiosa in carceribus genita, *Huxham* de aëre ad ann. 1742.

Miliaris purpurata, *Sauv.* sp. h.

Febris carcerum et nosocomiorum. *Pringle,* Diseases of the army, p. 294. *Van Swieten,* Maladies des armées, p. 136.

1 Typhus castrensis, *Sauv.* sp. 5.

Febris castrensis, quam vulgo cephalalgiam epidemicam vocant, *Henr. Maii* et *A. Ph. Koph.* Diff. apud *Hallerum*, tom. v.

Febris Hungarica sive castrensis, *Juncker*, 47. et plurium auctorum.

Febris castrensis Gallorum in Bohemia, ann. 1742. *Serint.* Diff. apud *Haller*, tom. v.

Febris petechialis, *Sennert.* l. iv. cap. 13. *River.* prax. l. xvii. sect. iii. cap. 1. *Hoffm.* II. p. 84. *Juncker.* 73. *Huxham* on fevers, chap. 8. *Ludwig.* Inst. med. clin. n° 146. *Schreiber* von erkenntniss, und cur der Krank heiten. p. 126. *Monro,* Diseases of military hospitals, p. 1.

Febris catarrhalis maligna petechizans, *Juncker*, 72. *Hoffm.* II. 75. *Eller* de cogn. et cur. morb. sect. vi.

Febris quæ lenticulas, puncticula, aut peticulas vocant, *Fracas-*
torius de morb. contag. lib. ii. cap. 6.

Febris peticularis Tridenti, ann. 1591. *Roboretus* de febr. peticul.

Febris petechialis epidemica Colonia ann. 1672. *Donckers*, Idia
febris petechialis.

Febris petechialis epidemica Pofonii, 1683, *C. F. Loeu* in App.
ad A. N. C. vol. ii.

Febris petechialis epidemica Mutinæ, 1692. *Ramazzini*. Const.
Mutinensis, oper. p. 177.

Febris maligna petechizans, ann. 1698. *Hoffin*. II. p. 80.

Febris petechialis Wratiflavie ann. 1699. *Helwich*, Ephem.
Germ. D. II. A. VII. et VIII. obs. 132. p. 616.

Febris epidemia Lipsiæ 1718. *M. Adolph*. A. N. C. III. obs.
131. p. 296.

Febris endemica et epidemica Corcagiensis ann. 1708, 1718, et
seq. *Rogers*, Essays on epidemic diseases.

Febris continua epidemica Corcagiensis ann. 1719, et seq. *M.*
O'Connel Obs. de morbis.

Febris petechialis epidemica Cremonæ 1734. *Valcharengki*
Med. ration. sect. 3.

Febris petechivans Petropoli 1735. *Weithrecht*. Diff. apud
Haller. tom. v.

Febris petechialis, ann. 1740, 1741, in Heflia, *Ritter*. A. N. C.
vol. vii. obs. 4.

Febris maligna petechialis Rintelli 1741. *Furstenau*. A. N. C.
vol. vii. obs. 5.

Febris petechialis epidemica Silesiæ 1741, et. seq. *Bandhorst*.
Diff. apud *Haller*. tom. v.

Febris petechialis epidemica Viennæ 1757. *Hasenobrl*. Hist.
med. cap. 2.

Febris petechialis epidemica Lipsiæ 1757. *Ludovig*. Adversar.
tom. i. pars 1.

Febris petechialis epidemica variis Germaniæ locis ab ann.
1755 ad 1761. *Strack* de morbo cum petechiis.

Description.] This disease has been supposed to differ from the
rmer in degree only; and there are many circumstances which
ould lead us to conclude, that both frequently originate from a
ontagion precisely of the same nature. In the same manner we
e, during different seasons, and in different circumstances, various
rees of malignity in small-pox. Though every instance of the
ease depends on the introduction of a peculiar and specific
ntagion into the body, yet this contagion in particular epidemics
idently possesses peculiar malignancy. The same is probably
e case with the typhoid fever: but whether this observation be

well founded or not, there cannot be a doubt that the typhus gravior or putrid fever is a disease of the most dangerous nature, as, besides the extreme debility of the nervous system, there is a rapid tendency of the fluids to putrefaction, which sometimes cuts off the patient in a few days, nay, in the warm climates, in twelve or fourteen hours; or if the patient recovers, he is for a long time, even in this country, in an exceedingly weak state, and requires many weeks to recover his former health.

The putrid fevers, according to Huxham, make their attack with much more violence than the slow nervous ones; the rigors are sometimes very great, though sometimes scarce felt; the heat sharper and more permanent; yet, at first, sudden, transient, and remittent: the pulse more tense and hard, but commonly quick and small; though sometimes slow, and seemingly regular for a time, and then fluttering and unequal. The head-ach, nausea, and vomiting, are much more considerable, even from the beginning. Sometimes a severe fixed pain is felt in one or both temples, or over one or both eye-brows; frequently in the bottom of the orbits of the eyes. The eyes always appear very dull, heavy, yellowish, and very often a little inflamed. The countenance seems bloated, and more dead-coloured than usual. Commonly the temporal arteries throb much, and a tinnitus aurium is very troublesome: a strong vibration also of the carotid arteries frequently takes place in the advance of the fever, though the pulse at the wrist may be small, nay even slow; this is a certain sign of an impending delirium, and generally proceeds from some considerable obstructions in the brain.

The prostration of strength, weakness, and faintness, are often surprisngly great and sudden, though no inordinate evacuation happens; and this too sometimes when the pulse seems tolerably strong. The respiration is most commonly laborious, and interrupted with a kind of sighing or sobbing, and the breath is hot and offensive.

Few or none of these fevers are without a sort of lumbago, or pain in the back and loins; always an universal weariness or soreness is felt, and often much pain in the limbs. Sometimes a great heat, load, and pain, affect the pit of the stomach, with perpetual vomiting of porraceous or black fluid, and a most troublesome singultus; the matter discharged is frequently of a very nauseous smell. The tongue, though only white at the beginning, grows daily more dark and dry; sometimes of a shining livid colour, with a kind of dark bubble at top; sometimes exceeding black; and so continues for many days together: nor is the time to be got off in some for several days, even after a favourable crisis: at the height of the disease, it generally becomes very dry, stiff, and black, or of a dark pomegranate colour. Hence the speech is very inarticulate, and scarce intelligible. The thirst is

the increase of the fever is commonly very great, sometimes unquenchable; and yet no kind of drink pleases, but all seem bitter, and mawkish; at other times, however, no thirst is complained of, though the mouth and tongue are exceedingly foul and dry; this is always a dangerous symptom, and ends in a frenzy or coma. The lips and teeth, especially near the height, are furred up with a very black tenacious fordes. At the onset of the fever, the urine is often crude, pale, and vapid, but grows much higher-coloured in the advance, and frequently resembles a strong ixivium, or citrine urine, tinged with a small quantity of blood; it is without the least sediment or cloud, and so continues for many days together: by degrees it grows darker, like dead strong high-coloured beer, and smells very rank and offensive. In petechial fevers, the urine hath often been seen almost black and very *fetid*. The stools, especially near the height, or in the decline of the fever, are for the most part intolerably fetid, green, livid, or black, frequently with severe gripes and blood. When they are more yellow or brown, the less the danger; but the highest when then they run off insensibly, whatever their colour may be. It is likewise a very bad symptom when the belly continues tense, swollen, and hard, after profuse stools; for this is generally the consequence of an inflammation or mortification of the intestines. A gentle diarrhœa is often very beneficial, and sometimes seems to be the only way which nature takes to carry off the disease.

Sometimes black, livid, dun, or greenish spots appear, which always indicate a high degree of malignity; however, the more florid the spots are, the less danger is to be feared. It is also a good sign when the black or violent petechiæ become of a brighter colour. The large, black, or livid spots, are almost always attended with profuse hæmorrhagies; and the small dusky, brown spots, like freckles, are not much less dangerous than the livid or black; though they are seldom accompanied with fluxes of blood: excessively profuse, cold, clammy sweats are often concomitant, by which also they sometimes vanish, though without any advantage to the patient. The eruption of the petechiæ is uncertain; sometimes they appear on the fourth or fifth day, though sometimes not till the eleventh, or even later. The *vibices*, or large dark, blue, or greenish marks, seldom appear till very near the fatal period. Frequently also we meet with an efflorescence like the measles in malignant fevers, but of a much more dull and livid hue; in which the skin, especially on the breast, appears as it were marbled or variegated. This in general is an ill symptom, and is often attended with fatal consequences.

Sometimes about the eleventh or fourteenth day, on the occurrence of profuse sweats, the petechiæ disappear, and vast quantities of white miliary pustules break out. This is seldom found of

any considerable advantage; but an itching, smarting, red rash, commonly gives great relief; and so do the large, netting, watery bladders, which many times rise upon the back, breast, shoulders, &c. A scabby eruption likewise about the lips and nose is certainly one of the salutary symptoms; and the more hot and angry it is, so much the better. But of much more uncertain and dangerous event are the brown-coloured aphthæ; nor are those that are exceeding white and thick, like lard, of a very promising aspect. They are soon succeeded by great difficulty of swallowing, pain and ulceration of the fauces, œsophagus, &c. and with an incessant singultus: the whole *primæ viæ* become at last affected; a bloody dysentery comes on, followed by a sphacelation of the intestines; as is evident from the black, sanious, and bloody stools, extremely fetid and infectious. Vibices, or large, black, and bluish marks resembling bruises, are frequently seen towards the close of the fever; and, when attended with lividity and coldness of the extremities, are certain tokens of approaching death. In some cases, the blackness hath been known to reach almost to the elbows, and the hands have been dead-cold for a day or two before the death of the patient.

Such are the general appearances of the putrid malignant fever in this country, among those who enjoy a free air, and are not crowded together, or exposed to the causes of infection: but in gaols, hospitals, or other places where the sick are crowded, and in some measure deprived of the benefit of the free air, the symptoms are, if possible, more terrible. Sir John Pringle, who had many opportunities of observing it, tells us, that the gaol or hospital fever, in the beginning, is not easy to be distinguished from a common fever. The first symptoms are slight interchanges of heat and cold, a trembling of the hands, sometimes a sense of numbness in the arms, weakness of the limbs, loss of appetite; and the disorder increasing towards night, the body grows hot, the sleep is interrupted, and not refreshing. With these symptoms, for the most part, there is some pain or confusion in the head; the pulse at first is a little quicker than natural, and the patients find themselves too much indisposed to go about business, though too well to be wholly confined. When the fever advances, the above-mentioned symptoms are in degree; and in particular the patient complains of a lassitude, nausea, pains in his back, a more constant pain and confusion in his head, attended with an uncommon dejection of spirits. At this time the pulse is never sunk, but beats quick, and often varies in the same day both as to strength and fulness. It is little affected by bleeding once, if a moderate quantity of blood be taken away; but if the evacuation be large, and especially if it be repeated, to answer a false indication of inflammation, the pulse, increasing in frequency, is apt to sink in force, and often irrecoverably, whilst the patient becomes delirious. But withal we

must observe, that, in every case, independent of evacuations, the pulse sooner or later sinks, and then gives certain intelligence of the nature of the disease. The appearance of the blood is various; for though it be commonly little altered, yet sometimes it will be fizy, not only on the first attack, but after the fever is formed: The worst appearance is when the crassamentum is dissolved; though this does not happen till the advanced state of the fever: though indeed this seems not so easy to be ascertained, as blood has been so seldom taken away at that time. The urine is also various. Sometimes it is of a reddish or flame colour, which it preserves a long time; but it is oftener pale, and changes from time to time in colour as well as crudity, being sometimes clear, sometimes clouded: towards the end, upon a favourable crisis, it becomes thick, but does not always deposit a sediment. If the sick lie warm, and have had no preceding flux, the belly is generally bound; but when they lie cold, as they often do in field hospitals, the pores of the skin being shut, a diarrhoea is a common symptom, but is not critical. In the worst cases, a flux appears in the last stage; then the stools are involuntary, colliquative, ichorous, or bloody, and have a cadaverous smell; the effects of a mortification of the bowels, and the signs of approaching death. When the hospitals are filled with dysenteric patients, some of the nurses will be infected with the flux only, and others with this fever, ending in these bloody and gangrenous stools.

In the beginning the heat is moderate; and even in the advanced state, on first touching the skin, it seems inconsiderable; but upon feeling the pulse for some time, we are sensible of an uncommon ardour (the *calor mordicans*, as it has been called), leaving an unpleasant sensation on the fingers for a few minutes after. A day or two before death, if care be not taken, the extremities become cold, and the pulse is then hardly to be felt. The skin is generally dry and parched; though sometimes there are longer or shorter sweats, especially in the beginning. Such as are produced by medicine are of no use, except on the first attack, at which time they will often remove the fever; and natural sweats are never critical till the disease begins to decline. These last are rarely profuse, but gentle, continued, and equally diffused over the body. Sometimes the disease will terminate by an almost imperceptible moisture of the skin; the sweats are usually feid, and offensive even to the patient himself.

The tongue is commonly dry; and, without constant care of the nurse, becomes hard and brown, with deep chaps: but this symptom is common to most fevers. At other times, though rarely, the tongue is soft and moist to the last, but with a mixture of a greenish or yellowish colour. The thirst is sometimes great, but more frequently moderate. In the advanced state, the breath

is offensive, and a blackish furring gathers about the roots of the teeth.

Some are never delirious, but all lie under a stupor or confusion; few retain their senses till death: many lose them early, and from two causes; either from immoderate bleeding, or the premature use of warm and spirituous medicines. They rarely sleep; and, unless delirious, have more of a dejected and thoughtful look than what is commonly seen in other fevers. The face is late in acquiring either a ghastly or a very morbid appearance; yet the eyes are always muddy, and generally the white is of a reddish cast as if inflamed. The confusion of the head generally rises to a delirium, especially at night; but, unless by an unseasonable hot regimen, it seldom turns to rage, or to those high flights of imagination common in other fevers. When the delirium comes to that height, the face is flushed, the eyes red, the voice is quick, and the patient struggles to get up. But when that symptom is owing to large evacuations, or only to the advanced state of the disease, the face appears meagre; the eyelids in slumbers are only half shut; and the voice, which is commonly low and slow, sinks to a degree scarce to be heard. From the beginning there is generally a great dejection and failure of strength. A tremor of the hands is more common than a starting of the tendons; or if the subfultus occurs, it is in a lesser degree than in many other fevers. In every stage of the disease, as the pulse sinks, the delirium and tremor increase; and in proportion as the pulse rises, the head and spirits are relieved. Sometimes in the beginning, but for the most part in the advanced state, the patient grows dull of hearing, and at last almost deaf. When the fever is protracted, with a slow and low voice, the sick have a particular craving for something cordial, and nothing is so cordial or so acceptable as wine. They long for no food, yet willingly take a little panada if wine be added. But such as are delirious, with a quick voice, wild looks, a subfultus tendinum, or violent actions, though their pulse be sunk, yet bear neither hot medicines, wine, nor the common cordials.

Vomiting, and complaints of a load and sickness at stomach, though usual symptoms, are not essential to the disease; nor are pleuritic stitches, difficulty in breathing, or flying pains, to be referred so much to it as to the constitution of the patient, or to a preceding cold.

A petechial efflorescence is a frequent, though not an inseparable, attendant of this fever. It sometimes appears of a brighter or paler red, at other times of a livid colour, but never rises above the skin. The spots are small; but generally so confluent, that at a little distance the skin appears only somewhat redder than ordinary, as if the colour was uniform; but upon a nearer in-

eruption there are interstices seen. For the most part this eruption is so little conspicuous, that, unless it be looked for attentively, it may escape notice. The spots appear thickest on the back and breast, less on the legs and arms, and Sir John Pringle never remembers to have seen any on the face. As to the time of their appearance, he agrees entirely with Dr. Huxham. These spots are never critical, nor are they reckoned among the mortal symptoms; but only concur with other signs to ascertain the nature of the disease. The nearer they approach to purple, the more they are to be dreaded. In a few cases, instead of spots, purple streaks and blotches were observed. Sometimes the petechiæ did not appear till after death; and there was one case in which, after bleeding, the petechiæ were seen only on the arm below the ligature, and no-where else on the skin.

The hospital fever, though accounted one of the continued kind, yet has generally some exacerbation at night, with a remission and often partial sweats in the day; and after a long continuance it is apt to change into a hectic, or an intermitting form. The length of the disease is uncertain. Sometimes it terminated either in death or recovery, in seven days after the patient took to his bed; but in the hospitals it generally continued from fourteen to twenty, and some died or recovered after four weeks. From the time of the sinking of the pulse until death or a favourable crisis, there is, perhaps, less change to be seen from day to day in this than in most other fevers. When its course is long, it sometimes terminates in suppurations of the parotid or axillary glands; and when these do not appear, it is probable that the fever is kept up by the formation of some internal abscess. The parotid glands themselves do not suppurate, but only some of the lymphatic glands. Sir John Pringle observed one instance of a swelling of this kind on both sides, without any previous indisposition, when the person, not suspecting the cause, and applying discutient cataplasms, was, upon the tumor subsiding, seized with the hospital-fever. Many patients after the crisis of this fever complain of a pain of the limbs and want of rest; and almost all of them mention great weakness, confusion in their head, vertigo, and a noise in their ears.

Ten of the bodies of those who died of this disease in Houghton's regiment were opened. In some all the cavities were examined; in others, only the brain or the bowels. In some of them, the brain appeared to be suppurated. The first of this kind Sir John Pringle met with at Ghent; but the man being brought into the hospital from the barracks no earlier than two days before he died, he could only conjecture from the symptoms and the imperfect accounts he had of him, that his death was owing to a fever of this kind after lingering near a month in it. About three ounces of purulent matter were found in the ventricles or

the brain, and the whole cortical and medullary substance was uncommonly flaccid and tender; nay, some of the same kind of matter was found in the substance of the upper part of the cerebellum: yet this person, with some stupor and deafness, had his senses till the night before he died; so far, at least, that he answered distinctly when roused and spoken to; but about that time the muscles of his face began to be convulsed. Of two other instances of men who undoubtedly died of this fever, in one the cerebrum was suppurated, in the other the cerebellum. In the former case, the patient was under a stupor, with deafness from the beginning; but was never delirious nor altogether insensible. His pulse sunk early; and about ten days before his death his head began to swell, and continued very large till within two days before he died, when it subsided a little. For several days before his end, he would taste nothing but cold water, and during his illness he lay constantly upon one side. The head being opened, an abscess as large as an egg was found in the substance of the fore-part of the right hemisphere of the brain, full of thin matter like whey. At that time five more, ill of the same fever, had the like swelling of their heads, but recovered. In the other case, the abscess in the cerebellum was about the size of a small pigeon's egg, and contained also a thin ichorous matter: nor had this patient ever been so thoroughly insensible as not to answer reasonably when spoken to. Two days before he died his urine turned pale.

These suppurations, however, were not constant; for another who died about the same time, and had been ill about the same number of days with the like symptoms, the pale water excepted, had no abscess either in the brain or cerebellum. And two were opened afterwards, in whom the cortical substance of the brain had an inflammatory appearance, but no suppuration. In one of them the large intestines were corrupted: that man went off with a looseness; and just before he died, an ichorous matter was discharged from his nose. In the military hospital at Ipswich, one who unexpectedly died of this fever after having been seemingly in a fair way of recovery, had no suppuration in his brain; but another, who died after, had an abscess in each orbit, the brain was found flaccid, and there was about two ounces of a thin serum in the ventricles.

2. *Causes of, and persons subject to, this disorder.*] The cause of this fever, as well as that of the slow nervous fever, is an infection or contagion from some diseased animal body, or from corrupted vegetables; and therefore is very little, if at all, different from those pestilential disorders which have arisen after battles, when great numbers of dead bodies were allowed to lie above ground, and infect the air with their effluvia. This is confirmed by an observation of Forestus, who was eye-witness to a distemper of this kind (which indeed he calls a *plague*) owing to the same cause, attended

with buboes and a high degree of contagion. The same author also gives an account of a malignant fever breaking out at Egmont in North-Holland, occasioned by the rotting of a whale which had been left on the shore. We have a like observation of a fever affecting the crew of a French ship, by the putrefaction of some cattle which they had killed on the island of Nevis in the West Indies. These men were seized with a pain in the head and loins, great weakness and a disorder of the stomach, accompanied with fever. Some had carbuncles; and on others purple spots appeared after death.

Galen assigns two causes for pestilential fevers: 1. The great heat of the weather, when the humours happen to be in a more putrescent state than usual. 2. A putrid state of the air, arising either from a multitude of dead bodies left unburied, as after a battle, or from the evaporation of corrupted lakes and marshes.

One of the most remarkable diseases incident to an army is related by Diodorus, as breaking out among the Carthaginians at the siege of Syracuse. That author not only relates some of its most distinguishing symptoms, but reasons well about its cause. He observes, that pains in the back and eruptions (*φλυκταιναι*) were common; that some had bloody stools; that others were seized with a delirium, so as to run about and beat all that came in their way; that the physicians knew no cure; and that it was the more fatal as the sick were abandoned by every body on account of the contagion. As to the cause, the author takes notice of the multitude of people confined within a narrow compass; of the situation of the camp in a low and wet ground; of the scorching heats in the middle of the day, succeeded by the cold and damp air from the marshes in the night-time; to these he adds, the putrid steams arising first from the marshes, and afterwards from the bodies of those who lay unburied.—This distemper seems to have been a compound of the marsh and pestilential fever.

Forestus remarks, that, from the putrefaction of the water only, the city of Delft, where he practised, was scarce ten years together free from the plague or some pestilential distemper. He adds, that the magistrates, upon his representation of the cause, erected a wind-mill for moving and refreshing the water. At that time Holland was much more subject to inundations and the stagnation of water than at present. In 1694, a fever broke out at Rochfort in France, which, on account of the uncommon symptoms and great mortality, was at first believed to be the plague. But M. Chirac, who was sent by the court to enquire into its nature, found the cause to arise from some marshes that had been made by an inundation of the sea; and observed, that the corrupted steams, which smelled like gunpowder, were carried to the town by the wind, which had long blown from that quarter. About two thirds of those who were taken ill, died. In such as were opened, the brain

was found either inflamed or loaded with blood ; the fibres of the body were uncommonly tender ; and the bowels had either suppurated or were mortified.

It is needless to mention more instances of pestilential fevers being brought on by the steams of corrupted substances, whether animal or vegetable. In general it may be remarked, that the putrefaction of these substances in a dry air is more apt to bring on a fever of the continued form ; but in a moist air hath a great tendency to produce remitting fevers. But it must also be observed, that, even in cases where the most malignant fevers prevail, all persons are not equally disposed to receive the infection, though equally exposed to it with others. Some, through mere vigour of body and mind, cannot be infected with the most contagious diseases ; while, on the other hand, those whose bodies are debilitated by a former disease, by study, low diet, or want, or those who have laboured under any of the depressing passions of the mind for some time, seldom or never escape. Men, therefore, who have been weakened by accidents (as those who have undergone a mercurial salivation) are very apt to fall into this disease. Those who are taken into crowded hospitals, ill of the small-pox, however good the sort may be, fall readily into this fever, and run a greater risk of dying of it than others. The second fever is attended with double danger, seeing the patient has been so much weakened by the first. A sure sign of the corruption of the air in an hospital is when many of the nurses fall sick.

3. *Prognosis.*] In these fevers we cannot draw a prognostic from any symptom by itself ; and perhaps all of them together are more fallible than in others. Generally the following are good : To have little delirium ; the strength little impaired ; turbid urine in the decline of the disease ; and at that time a gentle sweat or moisture diffused over the body, or even the skin soft and the tongue moist ; or to have some loose stools succeeded by a diaphoresis ; the pulse to rise by wine or cordials, with an abatement of the stupor, tremor, and other affections of the brain. Deafness is rather a good sign. A sediment in the urine, without other changes for the better, is no sure sign of recovery ; and some have recovered in whole water there was no sediment.—The bad signs are, a subfusus tendinum ; the eyes much inflamed and staring ; the speech quick, and the sound of the voice altered ; a high delirium ; perpetual watchfulness ; constant sickness at the stomach, and vomitings ; frequent stools, and a sinking pulse, and the disorder of the head increased ; coldness of the extremities, and a tremulous motion of the tongue. It is observed to be among the worst signs when the patient complains of blindness ; when he swallows with difficulty, or cannot put out his tongue when desired to do it ; when he can lie on his back only, and pulls up his knees ; or when insensibly he endeavours to uncover his breast, or makes frequent attempts to get out of bed without assigning any reason. If to

any of these are added ichorous, cadaverous, and involuntary stools, it is a sign of a mortification of the bowels and approaching death. It will not seem strange to find most of these prognostics common to the advanced state of other fevers, when we consider, that from whatever cause fevers begin, by a long continuance the humours are corrupted, and the brain and nerves affected much in the same manner as in those which arise from infection.

4. *Prevention and cure.*] As diseases of the putrid kind never arise without an infection received from some quarter or other, the methods of prevention must evidently be reduced to two general heads. 1. To avoid receiving the infection into the body; and, 2. To put the body in such a situation as may enable it to resist the infection when received. On both these methods scarce any writer hath equalled Dr. Lind of Haslar, whose opinions and directions therefore we shall give pretty fully.

As putrid diseases are very common and violent in the hot countries, it is very necessary for Europeans who visit these climates to be well informed, in the first place, of the signs of an unhealthy country, that they may be upon their guard as soon as they enter any foreign region. These signs are by our author enumerated as follows :

1. A sudden and great alteration in the air, at sun-set, from intolerable heat to a chilling cold. This is perceived as soon as the sun is down, and is for the most part accompanied with a very heavy dew: it shows an unhealthy swampy soil, the nature of which is such, that no sooner the sun-beams are withdrawn, than the vapours emitted from it render the air damp, raw, and chilling, in the most sultry climates; so that even under the equator, in some unhealthy places, the night-air is very cold to an European constitution.

2. Thick noisome fogs, chiefly after sun-set, arising from the valleys, and particularly from the mud, slime, or other impurities. In hot countries, the smell of these fogs may be compared to that of a new-cleaned ditch. Diseases, therefore, arising from this cause, generally take place in the night, or before sun-rising.

3. Numerous swarms of flies, gnats, and other insects which attend stagnated air and unhealthy places covered with wood.

4. When all butchers' meat soon corrupts, and in a few hours becomes full of maggots; when metals are quickly corroded on being exposed to the air; and when a corpse becomes intolerably offensive in less than six hours; these are proofs of a close, hot, and unwholesome country. And in such places, during excessive heats and great calms, it is not altogether uncommon for Europeans, especially such as are of a gross habit of body, to be seized at once with the most alarming and fatal symptoms of what is called the *yellow fever*, without even any previous complaint of sickness or other symptoms of the disease. There has been first per-

ceived an uneasy itching sensation, commonly in the legs; and upon pulling down the stocking, streams of thin dissolved blood followed, a ghastly yellow colour quickly diffused itself over the whole body, and the patient has been carried off in less than forty-eight hours.

5. A sort of sandy soil, commonly a small, loose, white sand, as that at Pensacola, Whydah, and the island of Bonavista, which is found by experience to be injurious to health. The pestiferous vapour arising, during the summer months and in the heat of the day, from such a sandy soil, is best characterised by its effects in the extensive deserts of Asia, and Africa. It there constitutes what is called the *Samiel wind*; a blast which, in the parched desert, proves instantly fatal both to man and beast: but when it passes over a soil well covered with grass and vegetables, has its effects greatly mitigated; it is, however, even then, productive of sickness: thus the southerly winds, while they blow from the deserts of Libya during the summer, at Algiers, Tunis, and Tripoli, produce an unhealthy season; and at Madras the winds, which, in the months of April and May, pass over a large tract of sand, are always hot, disagreeable, and unwholesome.

During these land-winds, sudden gusts of a more hot and suffocating nature are often observed to come from these sands once or twice, or even more frequently, in a day, which seem to be this vapour in a purer form. These gusts pass very quickly, and affect persons who happen to stand with their faces towards them in the same manner as the hot air which issues from a burning furnace, or from a heated oven, and obliges them immediately to turn away from it in order to recover breath. The effect of this hot suffocating blast or vapour on the human body, even when mitigated by passing through a moist atmosphere, is the same as that of intense cold; it shuts up every pore of the skin, and entirely stops the perspiration of such as are exposed to it. These blasts come only in the day-time, and always from the deserts. Water is the only known corrector or antidote against them; hence, coarse thick cloths, kept constantly wet, and hung up at the windows or doors, greatly mitigate their violence. A house so built as to have no windows or doors towards the deserts, is an excellent protection against their pernicious effects. The hot land-winds constantly blow at Madras and other places on the coast of Coromandel, at that season, from midnight till noon: the sea-breezes then begin, which relieve the difficulty in breathing, and the obstructed perspiration which the former occasioned.

That the heat of these land-winds, as also of the sudden gusts which accompany them, proceed from large tracts of sand heated by the sun, is evident from the increased heat and suffocating quality of those winds, in proportion as the day advances, and as the heat of the season is increased. The opposite winds blowing from

each side of the Balagate mountains, are a farther proof of this. These mountains, running from north to south, divide the hither Peninsula of India into two unequal parts, and separate what is called the *Malabar* from the *Coromandel* coast. To the former they are very near, but at a great distance from the latter. The winds blowing from those hills are on the Malabar coast always remarkably cool; but on the coast of Coromandel, in the months of April, May, June, and July, are extremely hot and suffocating, as they pass over a large tract of intermediate sand, heated during those months by an almost vertical sun. Hence the Malabar coast is always covered with an agreeable verdure; whereas the Coromandel coast, during the continuance of these hot winds, seems a barren wilderness, nothing appearing green except the trees. On the contrary, the winds that pass over these sands, after being wet with the rains, are the coldest which blow at Madras. Bottles of liquor inclosed in bags of coarse cloth, kept constantly wet and suspended in the shade, where those hot winds may have access to them, become as cold as if they had been immersed in a solution of nitre; an effect owing undoubtedly to the constant evaporation of water from the surface.

It is an observation of the natives on the coast of Coromandel, which is confirmed by the experience of many Europeans, that the longer the hot land-winds blow, the healthier are the ensuing months; these winds, as they express it, purifying the air. Are not the winds, therefore, the cause why the air on the coast of Coromandel, except during their continuance, is more healthy than in other parts of India where these winds do not blow? Does not this also suggest a very probable reason, why the plague in Egypt generally ceases in the beginning of June; the periodical hot winds which come from the deserts of Nubia and Ethiopia having then rendered the air of Egypt pure and wholesome? Many have ascribed that effect to the north winds; as the plague not only ceases when they blow, but all infected goods, household furniture, and wearing apparel, are then said to become entirely free from the contagion: these, however, cannot be the cause, as the most destructive plague is abated in its violence, if not wholly eradicated; before they set in. With equal propriety we may reject the opinion that the overflowing of the Nile is productive of that salutary effect, as the plague generally ceases before the increase of that river is perceptible.

Thus the plague, the greatest calamity which can afflict mankind, seems to be destroyed by those hot winds, which are otherwise so pernicious to animal and vegetable life. And although, during the continuance of these winds, the most fruitful fields wear the aspect of a parched desert, yet no sooner do the rains fall, but vegetation is restored, the plants revive, and a beautiful verdure is again spread over the face of the country.

Having thus given an account of the signs of an unhealthy country, Dr. Lind next proceeds to mention such employments as are particularly dangerous to Europeans on their first arrival. One of these is the cutting down of trees, shrubs, &c. or *clearing the ground*, as it is called. Of the unhealthiness of this employment he gives two instances. At the conclusion of the late peace, the captain of a ship of war went on shore at the island of Dominica, with twelve of his men, to cut down the wood, and to clear a piece of ground which he intended to have purchased, but in a few days, sickness obliged him to desist from this dangerous work; the captain and eleven of his men being seized with violent fevers, which terminated in obstinate intermittents, and of which several died. The survivors suffered so much in their constitutions, that, even after they came to England, the return of an east-wind was apt to bring on a violent fit of the ague. The Ludlow-Castle, a ship of war of forty guns, in a voyage to the coast of Guinea, also lost twenty-five of their men at Sierra Leona, who were employed in cutting down wood for the ship. This is an occupation which has often proved destructive to Europeans in those climates, and in which they ought never to be employed, especially during the rainy season; there being numberless instances of white persons, when cutting down the woods at that season, who have been taken ill in the morning, and dead before night.

Another evil, less known, and less suspected, but no less dangerous, is the sending of Europeans in open boats after sunset, where the soil is swampy, or where there are great night-fogs. The single duty alone of fetching fresh killed butchers' meat at night for the use of our ships' companies in the East and West Indies, has destroyed every year several thousand seamen. In those parts of the world, butchers' meat must be brought on board at night immediately after it is killed, otherwise it will not be fit for use the next day; but a contract made with the natives to send it on board at that time, which might be done for a trifling sum, would be the means of preserving many useful lives. During the sickly season at Batavia, a boat belonging to the Medway, which attended on shore every night, was three times successively manned, not one having survived that service. They were all taken ill in the night, when on shore, or when returning on board; so that at length the officers were obliged to employ none but the natives on that business. Great numbers of men have perished from being employed in this manner at Bengal, where the European ships often anchor in the most unhealthy spots of the river; and even when the great night-fogs arise, after the rainy season, the men are often obliged to perform such night-services in boats. Now since it is so dangerous for Europeans in unhealthy countries, particularly during a season of sickness, to be exposed in an open boat to the foggy night-air, it must appear, that sending them unprotected, in open

boats, far up rivers, in unhealthy southern climates, for the sake of wood, water, trade, or other purposes, must be attended with the most destructive and fatal consequences.

Burying the dead in swampy countries is another occupation which has proved fatal to many, and which ought to be entrusted to negroes or the natives of the country. The effluvia from the ground when newly opened, whether from graves or ditches, are far more dangerous than from the same swampy soil when the surface is undisturbed; nay, in some places it has been found almost certain death for an European to dig a grave, unless long seasoned to the country. In such a place, the attendance of friends at funerals ought to be dispensed with.

In all cases where it is practicable, the ships which visit these unhealthy countries should anchor at as great a distance as possible from shore; or if obliged to anchor near marshy grounds or swamps, especially during summer or in hot weather, and when the winds blow directly from thence, the gun-ports which would admit the noxious land-breeze ought to be kept shut, especially at night. Or if the ship rides with her head to the wind, a thick sail ought to be put upon the foremast, along which the smoke from the fire-place might be made constantly to play and ascend. If the sail should occasion a little smoke between decks, this inconvenience will be sufficiently compensated by its keeping off the direct stream of the swampy shore effluvia; which now being obliged to form a curve before they reach the more distant parts of the vessel, must needs be greatly diverted and scattered.

The best preservative against the mischievous impressions of a putrid fog, or of a marshy exhalation, is a close, sheltered, and covered place; such as the lower apartments in a ship, or a house in which there are no doors or windows facing the swamps. If in such places a fire be kept either at the doors and other inlets to a house, or in the chambers, as is practised in some unhealthy countries during the rainy or foggy season, it will prove an excellent and effectual protection against the injuries of a bad air. On board of ships also fires may be made at the hatchways; and of the good effects of this we have the following example. When the *Edgar*, a ship of war of 60 guns, was upon the coast of Guinea in the year 1768, her men were very sickly, and many of them died: however it was observed, that in a sloop of war, which was constantly in company with her, few were taken ill, and not one died during the whole voyage. This could be ascribed to no other cause, but that in the sloop the fire-place for cooking victuals was on the same level with the deck where the men lay; and every morning when the fire was lighted, especially when there was but little wind, the smoke from the cook-room spread itself all over the ship, and particularly over those parts where the men lay; but

from the construction of the fire-place of the *Edgar*, no smoke from it ever came between her decks.

Persons on board any ship whatever, are much more safe, and their situation is much preferable to that of those who make distant inland excursions in small boats upon the rivers, and who are for the most part ignorant of the cause of those maladies which destroy them. The intolerable heat at noon often obliges such persons to go in a manner half-naked; while a free and plentiful perspiration issues from every pore. A near approach to putrid swamps, at this time is apt to produce an immediate sickness, vomiting, and afterwards a low nervous or malignant fever. But if they happen to pass them at night, or lie near them in an open boat, the air from those swamps is perceived to be quite chill and cold; inasmuch that warm thick clothing becomes absolutely requisite to guard the body against the impressions of so great an alteration in the air, and against its cold and inclement quality; for the effects of it then, even on the most healthy and vigorous constitution, is frequently a chilling cold fit of an ague, terminating in a fever with delirium, bilious vomitings, a flux, or even death itself.

But where such exposure becomes unavoidable, the only method is then to defend the body as much as possible against the pernicious miasmata with which the air abounds. All those who are employed in cutting down woods, or in other laborious and dangerous services in hot climates, during the heat of the day, ought to have their heads covered with a bladder dipt in vinegar, and to wash their mouths often with the same liquor; never to swallow their spittle, but rather to chew a little rhubarb or some other bitter, and spit it out frequently; to stop their nostrils with a small bit of linen or tow dipped in camphorated vinegar; and to infuse some bark, garlic, and rhubarb, in brandy, of which a drachm is to be taken, either by itself or diluted with water, morning and evening.

In the evening before sunset they should leave off work, and not return to their labour in the morning till the sun has dispersed the unwholesome dews and vapours. Those who must of necessity remain on shore, and sleep in dangerous places, must take care not to sleep upon the ground exposed to the dews, but in hammocks in a close tent, standing upon a dry sand, gravel, or chalk, near the sea shore, and where there is no subterraneous water for at least four feet below the surface of the ground. The door of his tent should be made to open towards the sea; and the back part of it, which receives the land-breeze, must be well secured by double canvas, or covered with branches of trees. But in such circumstances, a hut, when it can be procured, is preferable to a tent, especially if it be well thatched, so as to prove a defence both against the excessive heat of the sun by day, and the noxious dews which

fall at night: Here the men may be enjoined to smoke tobacco. When the air is thick, moist, and chill the earth being overspread with cold dew, a constant fire must be kept in and about the tent or hut, as the most excellent means of purifying such unwholesome air, and of preserving the health of those who, either sleeping or waking, are exposed to its influence. The sentinels who guard the water-casks, ought likewise at such a time to have a fire burning near them. All old and forsaken habitations, natural caves and grottoes in the earth, where the men may be induced to take up their abode, must before their admission be perfectly dried and purified with sufficient fires. Fire and smoke are undoubtedly the great purifiers of all tainted and unwholesome air, and the most excellent preservatives against its noxious influence. It is the custom of the negroes in Guinea, and also of some Indians (who both sleep for the most part on the ground), to have a fire, producing a little smoke, constantly burning in their huts where they sleep. This not only corrects the moisture of the night, but also, by occasioning more smoke than heat, renders the damp from the earth less noxious; of which Dr. Lind gives the following remarkable instance. A Guinea ship being up one of the rivers for the sake of trade, it was found to be very dangerous to sleep on shore; without which their trade could not be so conveniently carried on. First the captain, then the mate, and two or three of the seamen, were taken ill, each of them the morning after they had lain on shore. By these accidents the men were greatly intimidated from lying on shore; till the surgeon boldly offered to try the experiment on himself. Next morning when he waked, he found himself seized, as the rest, with a giddiness and pain in the head, &c. He immediately acquainted one of the negroes with his condition, who carried him to his hut, and set him down in the smoke of it: when his shiverings and giddiness soon left him. He then took a drachm of the bark bitter; and found himself greatly relieved, especially by breathing some time in the smoke. Thus instructed by the negro, he ordered a large fire to dry the hut he slept in; and afterwards had every night a small fire sufficient to raise a gentle smoke, without occasioning a troublesome heat: and by this means he and several others, using the same precautions, slept many nights on shore without any inconvenience.

Fire and smoke indeed are found to be certain correctors, or rather destroyers, of infection in all cases, whether arising from the noxious effluvia of marshes, or from the contagion of diseased bodies. Even those most extraordinary and fatal damps called *barmatans*, are unable to resist the salutary effects of smoke. In other cases, Dr. Lind remarks, that, under some circumstances, the source of an infection in a sick chamber, or any other place, may be removed or destroyed by accidental means, for which we

cannot account, and which we often cannot ascertain. But it oftener happens, that it is very difficultly rooted out ; and that exact cleanliness, with the benefit of a pure air, often prove insufficient to remove the evil. Smoke, however, has never been known to fail. It is not to be doubted, that, excepting the true plague, there has been an infection fully as pestilential and as mortal in some ships as in any other place whatever ; yet it has never been heard, that any ship, after having been carefully smoked, did not immediately become healthy : and if afterwards they turned sickly, it was easy to trace that sickness from other infected ships, gaols, and the like places.

There are three methods practised for purifying vessels after the men have been removed out of them. The first is by burning of tobacco. A quantity of tobacco is spread on several fires, made with such old pieces of rope as are called *junk*. These are dispersed into different places of the ship, and their heat and smoke afterwards closely confined below for a considerable time. The second method is by charcoal fires strewed with brimstone.—The heat and steam of these burning materials must also be long and close shut up : but, although this fume, properly applied, has been found by experience to purify most effectually tainted apartments, ships, clothes, &c. yet there are some kinds of vermin which it will not destroy, particularly lice. The third method of purification is performed by the addition of arsenic to the materials of the second process, in the following manner.—After carefully stopping up all the openings and every small crevice of the ship (as was also necessary in the preceding processes), a number of iron pots, properly secured, are to be placed in the *hold, orlop, gun-deck, &c.* Each of these are to contain a layer of charcoal at the bottom, then a layer of brimstone, and so alternately three or four layers of each, upon which the arsenic is to be sprinkled, and on the top of it some oakum dipped in tar is to be laid to serve as a match. The men, upon setting fire to the oakum must speedily leave the place, shutting close the hatchway by which they came up.

From the known and experienced efficacy of these processes, it appears, that fire and smoke are the most powerful agents for annihilating infection ; and, it may be presumed, even the plague itself. This is in some measure agreeable to what we learn from the ancient records of physic.—But the preposterous use, or rather abuse, of fire on such occasions, has caused its effects to be disregarded by some, and to be suspected of mischief by others. The modern practice of burning large fires in the open air, in the streets, and about the walls of towns infected with the plague or other contagion, is founded on principles groundless and erroneous ; and has therefore been found by experience not only unsuccessful, but hurtful. But though this must be allowed, it doth not thence by any means follow, that when once a house hath been

infected, and the patients removed from it, the doors and windows at the same time being shut, that such fires will then prove hurtful ; or that, by this method of purification, all the seeds of contagion will not be effectually destroyed. Whenever, therefore, persons die of a spotted fever, a malignant fore throat, the small-pox, or any distemper found to be communicable from the sick to others, the corpse ought quickly after death to be removed into another room ; that in which the person died should be well aired, by having the windows opened, till a charcoal fire be kindled, with some rolls of sulphur upon it ; after which, both doors and windows should be kept shut for a considerable time, not less than eight or ten hours, till the room be thoroughly smoked. In several ships, where there are the fairest opportunities of trying and judging things of this nature, the contagion of the small-pox has been entirely stopped by wood-fires, sprinkled with brimstone, kept burning and closely confined in the infected place. In a word, a judicious and proper application of fire and smoke is the best means for the destruction and utter extinction of the most malignant sources of disease ; and they are besides the greatest purifiers of all bad and tainted air.

Next to the smoke of wood for purifying a tainted air, that of gun-powder is to be esteemed the best ; and it has this further good property, that it is entirely inoffensive to the lungs. The cascarilla-bark, when burning, gives a most agreeable scent to the chamber of the sick ; and is at least an elegant preservative, and may prevent bad smells from taking effect. The steam of camphorated vinegar warmed, is still more powerful for this purpose. But, besides correcting the ill quality of the air, and purifying the chamber, another good effect is produced from such steams and smoke as are inoffensive to the lungs. As soon as the vapour becomes dense, the nurses and patients become desirous of the admission of fresh air by the door or windows. Now it is certain, that the air in the chambers of the sick cannot be too often changed, provided the patient be well covered, and the curtains of his bed, if necessary, be drawn close. No remedy is so forcible to obviate the danger of foul air in a room or ward (occasioned by the obstinacy of nurses or relations), as ordering it to be frequently fumigated or smoked ; a practice more frequent in other countries than in this, and of great benefit to the sick.

Lastly, with regard to the method of purifying goods, moveables, clothes, &c. which are supposed to harbour infection, it must be observed, that the usual custom of only unpacking and exposing such materials to the open air, is in many instances insufficient to destroy the latent seeds of disease.—It is certain, indeed, that in most cases the contagious particles are more readily and fatally communicated from the clothes of a sick person than from his body. The spreading abroad, therefore, of contaminated clothes to dry, or to be

aired, without a previous fumigation of them, may be of dangerous and fatal consequence. All such suspected substances should be first fumigated in a close place, and in the same manner as an infected chamber, after which they may be spread abroad and exposed to the air.—In infectious diseases, especially fevers, the linen of the sick, or such clothes about them as will admit of being washed, ought never at first to be put in warm water, as it is dangerous to receive the steam that may thence arise. It is necessary to steep them first either in cold water or in cold soaps-les for several hours, that the filth may be washed off.

5. *Particular Medical Treatment.*] We must now proceed to give an account of the *method of cure*, after these means of *preventing* the infection from being received into the body have either been neglected or proved ineffectual. Here it is of the utmost importance to take the disease in the very beginning, before it hath time to corrupt the fluids to such a degree as to endanger life. In these slight degrees of infection, a vomit (such as Form. No. 1. or 2.) properly administered, especially if succeeded by a blister, frequently will remove this disorder, and prevent the fever which would otherwise unavoidably follow. Of this the following instances have been given. A lady afflicted with the bilious colic, had intolerably fetid discharges of corrupted matters upwards and downwards. A gentlewoman, only in passing the room, was immediately seized with a retching and sickness, which continued twenty-four hours. The nurse who attended was suddenly seized with a giddiness and vomiting from the bad smell, which, as she expressed it, reached into her stomach. The vomiting became more severe at night, accompanied with a purging and frequent shiverings. By means of an emetic both evacuations were stopped: notwithstanding which, for some days afterwards, she continued to have frequent tremors, and a violent head-ach, with a low irregular pulse; and did not recover so soon as the patient.

Such slight degrees of infection have been often observed to be derived from patients of a gross habit of body, when labouring under inflammatory disease, and even other complaints. A man was sent to Haslar hospital, supposed to have a fever. He was furiously delirious, with a quick full pulse. Notwithstanding plentiful evacuations, this delirium continued for two months with short intervals; when the case was found to be plainly maniacal. A nurse, upon raising this person up in her arms, perceived an intolerably bad smell, and was instantly seized with shiverings, sickness, and head-ach. Finding herself very ill, she took a vomit in six hours afterwards, and passed the night in profuse sweats by means of a sudorific draught. Next morning the violence of the head-ach was but little abated; upon every attempt to move, she complained of a burning heat and pain in her

forehead, and became giddy. Her inclination to drink was frequent, and her pulse low and quick. A blister was immediately applied to the back; as soon as the blister took effect, the head-ach and thirst entirely left her, and the pulse was calm. Next day she arose and was well.

Many similar instances of infection have been observed from putting the dead into their coffins. In particular, one man, who, from performing that duty to his messmate, was so ill, even after the operation of the vomit, as to require a blister. In the course of one week two nurses were infected by a person in the small-pox. Both were seized in like manner with shiverings, sickness, and head-ach; the one upon receiving the patient's breath, the other upon making his bed. In one, a pain darted into her breast; in the other, into the breast and in the small of the back. The complaints of the former were speedily removed by a vomit, though she continued to have irregular returns of shiverings for three days afterwards. But in the latter, though the head-ach, sickness, and rigors, were greatly abated by the vomit, yet a constant heat and thirst, with a low pulse, and a violent pain in the breast, indicated the necessity of applying a blister to the affected parts, which next morning removed all her complaints.

Some are immediately sensible of having received an infection from the first attack: they generally compare the first impression to an earthy, disagreeable smell, reaching down, as they express it, into the stomach, as from a grave newly opened, but not quite so raw as the cadaverous stench; and the effects of it, shivering and sickness, are instantaneous. It is a smell difficult to describe; but it is well known to the nurses and attendants about the sick, as it usually accompanies fevers of extreme malignity, and, with the peculiar discharges from the blistered parts, may be reckoned among the constant symptoms of a bad fever. Some compare the smell to that of rotten straw. It often resembles the disagreeable smell of a person labouring under the contagion of small-pox at their turn, though not so strong. One person, on receiving the infection, was sensible of something like an electric shock through his body. But many are not sensible of any effect from an infection at first; and an infection from a fever will sometimes continue for many days, nay weeks, discovering itself chiefly by irregular shiverings, sometimes so severe as to oblige the patients to have recourse to their beds once or twice a-day; sometimes every other day.—Among a number thus affected, it also appears, that such as are put into unseasoned chambers, or have sat down on the cold ground, lain in a raw damp apartment, &c. are immediately seized with a sickness at the stomach, sometimes with a dangerous purging, and often with fevers, accompanied with bad symptoms, which others have entirely escaped.

It now remains to consider the proper method of curing putrid

fevers, on the supposition that the infection has been allowed to operate till the blood becomes radically tainted, and of consequence the nervous system affected to such a degree, that its power cannot be restored by any of the simple medicines above mentioned. Here also authors agree, that a change of air, when it can be effected, is absolutely necessary, and often contributes more towards the removing of the disease than all the medicines that can be exhibited. The utility of this change will appear from what hath been formerly said; and we shall only further alledge one instance from Dr. Lind, in which the effects of bad air appear to a degree almost incredible. "It is remarkable (says he), that in the last war, the English ships which touched at Batavia suffered more by the malignant and fatal diseases of that climate, than they did in any other part of India, if we except a fatal scurvy which once raged in that fleet at sea. Soon after the capture of Manilla, the Falmouth, of 50 guns, went to Batavia, where she remained from the latter end of July to the latter end of January; during which time she buried one hundred soldiers of the 79th regiment, and seventy-five of the ship's company; not one person in the ship having escaped a fit of sickness, except her commander Captain Brereton. The Panther, a ship of 60 guns, was there in the years 1762 and 1764; and both times during the rainy season. In the former of these years, she buried seventy of her men; and ninety-two of them were very ill when she left the place. In the year 1764, during a short stay, twenty-five of her men died. The Medway, which was in company with her, lost also a great number of men. Nor was the sickness at that time confined to the ships; the whole city afforded a scene of disease and death: streets crowded with funerals, bells tolling from morning to night, and horses jaded with dragging the dead in hearses to their graves. At that time a slight cut of the skin, the least scratch of a nail, or the most inconsiderable wound, turned quickly to a spreading putrid ulcer, which in twenty-four hours consumed the flesh even to the bone. This fact is so extraordinary, that, upon a single testimony, credit would hardly be given to it; yet on board the Medway and Panther they had the most fatal experience of it, and suffered much from it."

But where a change of air was impracticable or ineffectual, and where the fever had already made some progress, Sir John Pringle generally took away some blood if the pulse was full. When the symptoms ran high, a plentiful evacuation of that kind seemed indicated; yet it was observed that large bleedings generally did harm, by sinking the pulse, and affecting the head. Nor was a moderate bleeding to be repeated without caution; even those whose blood was sily, unless the lungs were inflamed, were the worse for a second bleeding. If the head only suffered, it was much safer to use leeches than to open a vein in the arm;

but in the delirium with a sunk pulse, even leeches were hurtful. Many recovered without letting blood, but few who lost much of it.

Dr. Fordyce says we are to endeavour to lessen the fever at the beginning by the emetic (No. 2.), followed by the draught (No. 31.); but profuse sweating is not to be attempted. If it continue, however, in the evenings following that of the emetic, until the fifth day;

(No. 40.) ℞ Sacch. Alb. gr. xx.

Antim. tartar. gr. fs. ad gr. j.

Divide in pulv. ij. capiat unum hora viij. alterum hora xj. vesp. cum Haust. sequent.

(No. 41.) ℞ Antim. Tart. gr. $\frac{1}{4}$ ad gr. j.

Sacch. Alb. r. x.

Misce fiat Pulvis.

Capiat quartâ vel sextâ quâque horâ cum Haust. sequent.

℞ Aq. Menth. vulg. ℥ij.

Sp. Nuc. Mosch. ℥ij.

Syr. Moror. ℥ij. — M. Ft. Haust.

Or it is better to exhibit the medicine in the following manner:

(No. 42.) ℞ Antim. Tart. gr. xxxx.

Solve bulliendo ex Aq. Pur. ℥ij.

Solutioni fere bullienti adde Vin. Alb. dulcis ℥vj.

Sumat gtt. xxv. et supra, quartâ, quintâ, vel sextâ quâque horâ; nausea non tamen, excitanda.

At the beginning, through the whole periods, gentle sedatives may be used.

(No. 43.) ℞ Aq. Fontis. vel Cinnam. vel Menthæ sativæ ℥ij.

Succ. Limon. vel Mororum,

vel Acid. Vit. vel Mur. q. s. ad gratam acedin.

Syr. Violar. ℥j.

Ft. Haust. quartâ quâque horâ sumend.

If the belly be not sufficiently open, one of the following draughts may be given:

(No. 44.) ℞ Infus. Sen. ℥ij.

Sal. Glauber. ver. ℥ij. ad ℥iij. vel

Tart. Vit. ℥ij. ad ℥i. vel

Tart. Solub. ℥i. ad ℥ij.

Træ. Senn. ℥ij.

Mannæ ℥j. Misce.

The foregoing treatment, however, is less proper in hot climates than in our own; for in the former, it is necessary to be aware of the debilitating powers of antimony, or at least to be watchful that no partial secretion is brought on by its use. Dr. Fordyce indeed says, if the symptoms of weakness be considerable, it will be improper to use (No. 42.), or continue it to this time of the disease.

Vomits also must be given with caution; for though they may

be of use by way of prevention, yet in the advanced state of the disease, when the patient has all along complained of a sickness at stomach, they are evidently unsafe. Here the antiseptic quality of fixed air is of much use.

(No. 45.) R Kali præp. ℥j.

Succ. limon. ʒj. Miscæ f. Haust.

This, given in the act of effervescence, twice or thrice a-day, is generally attended with happy effects. Clysters of fixed air itself have also been found very serviceable. Even in very bad stages of the disease, where a putrid colliquative looseness has taken place, these have been known to alleviate the symptoms.

It has been of late the practice of some medical practitioners, to administer *yeast* in putrid fevers, and other diseases which have tended towards putridity. As an acknowledged *antiseptic*, we have no hesitation in yielding our assent to such a remedy being resorted to in cases not to be considered as formidable; those for instance that usually occur in Britain. But in the fevers of the West Indies, without some farther and decisive evidence in its behalf, we are inclined to think a medicine endued with such moderate powers should scarcely be preferred to others which are better known to physicians. By no means wishing, however, to pre-judge the question, we shall here introduce a few cases which the advocates for the use of yeast have brought forward in its support, without regard to their being precisely such as fall under the head of putrid fever.

Dr. ROLFE, physician to a dispensary in London, inserts the following account in a periodical work:

“I was requested,” says he, “to visit Margaret Jackson, aged 42, who had been ill for some time with a putrid fever; she was then delirious, her tongue, teeth, and lips, were covered with a black fur, and she had also a violent diarrhoea. I thought this a favourable opportunity for trying the yeast: I told the daughter, the time for medicine to be of service was gone by, but if she would attend punctually to my directions, I could lay down a plan that might possibly relieve her mother. The girl, anxious for her mother’s recovery (having left her place of service to nurse her), promised she would be punctual. Being a truly distressed family, I gave them money to purchase yeast, which I continued to do through their illness, as their situation would otherwise exclude them from getting a sufficient quantity, and the case might be imperfect for the want of it. The woman continued taking it, diluted with water, until she was perfectly recovered, without any other medical assistance, and there also seemed less prostration of strength when the fever was over, than I ever found in a patient before, considering the severity of the disease, and the melancholy circumstances of the patient. A few days afterwards the husband came home ill, and in twenty-four

hours he was delirious; the symptoms nearly the same as the wife, excepting the husband being very costive, which I, however, totally disregarded, as I did the wife's diarrhoea, leaving Nature to take her own course. The husband being fully convinced of the effect of the yeast on his wife, took it immediately, and continued it through the whole course of his delirium, rejecting every thing else until he was perfectly recovered. At the same time one of the daughters was taken ill, and by a deal of exertion, got down a considerable quantity, by which she got quite well. Before this daughter got well, the eldest was taken ill, and pursued the same plan, by which means she also was perfectly recovered."

Dr. BRADLEY, physician to the Westminster hospital, publishes the following account of the effects of yeast, in the Medical and Physical journal :

"A contagious fever, of the most malignant kind, appeared in London and Westminster during the months of November and December last. A delirium often commenced as soon as the third day; and a petechial eruption, though more florid than usual, appeared on the breast and trunk. The other symptoms differed little from those usually observed in gaol or contagious fevers.—A female patient, afflicted with this formidable disease, and with permanent delirium, was admitted into the Westminster hospital during the last month, and, as usual, put on the generous and cordial plan; but in a few days neither food nor medicine could be administered, on account of the repugnance of the patient. In this desperate situation I directed the apothecary to procure some fresh yeast, and to dilute it if necessary, of which a tablespoonful was to be given every four hours. The patient took it without difficulty; it agreed with the stomach and bowels, and in three days an evident amendment was observed. The patient is now perfectly cured of the fever, and no other remedy, not even wine, was employed in conjunction with the yeast."

The following account of the medicinal application of yeast is given to the public, through the same medium, by Dr. LEWIN, physician to the dispensary at Liverpool. After some remarks not immediately to our purpose, he says,

"In the first fever wherein I adopted this practice, the patient, a young woman of 19, of ruddy complexion, naturally plethoric, and liable to inflammatory ailments, was informed of its origin, and that yeast was far from being commonly in use, but that it would at least be harmless. The family possessing more good sense and energy of mind than generally happens to the uneducated, made none of those frivolous objections so often met with, where a patient is trusted with the knowledge of the medicine prescribed. She had taken the infection from her sister, whose case had been truly deplorable, and nearly desperate. The sisters were obliged

to lie in one bed, and their diet had been latterly poor, as the mother was afflicted with dysentery during and prior to the sickness of her two fatherless daughters. Being patients belonging to the dispensary, and the emetic which was ordered previously to any other medicine being lost, the circumstance was concealed till after recovery. She dreading a situation similar to that of her sister, whom she had watched night and day with all the assiduity of affection, took yeast to the amount of a meatspoonful, four, five, and sometimes six times a-day: her natural colour returned in about five days; and, to my surprise, I found her affected with a slight, though complete cynanche tonsillaris; on which I omitted the medicines, and ordered merely gargles with an external liniment; and in a few days she was again able to return to the duties of a nurse to her sister, which the mother, though now recovered, was scarcely equal to perform. Some have complained much of an uneasy sense of distension arising from the medicine, a circumstance which has caused more than one patient to relinquish its use, as did this person on the last day of her taking it. I ought to add, that in some instances disappointment has attended its exhibition, though, save in hospitals, we cannot rely on the adoption of a practice which popular prejudice ridicules, or starts at. In some instances, I have no doubt but deception has been practised. In a case of cynanche maligna, as a gargle, and internally administered, I thought it aided other remedies."

The last testimony we shall adduce in this place is that of Mr. GROSE, of Winslow, who does not attempt to give a name to the disease in which yeast appears to have been of service. No *putrid* symptoms indeed seem to have been manifested.

"In May, 1798, the child of John J—— (then resident at Coventry, but now an inhabitant of S——y), aged two years, was attacked with a severe pain in the head, and cough, which, by diminishing his appetite, and his parents being unable to procure him proper support, reduced him to a very weak condition. Medical advice was obtained, and but little benefit derived; the cough still continued, and a gradual wasting of the body ensued. Providentially for the helpless sufferer, the father was informed, by a clergyman, who occasionally practised physic, of the salutary effects of yeast (or, as it is styled here, *barm*) in such cases; this medicine having been administered by him to several infants in a similar situation, and with the most beneficial effects.

"They consented to try it, and the child was to take three teaspoonsful night and morning. For the first week, no apparent advantage was derived; the body was rather purged, and they feared it would weaken him too much. The diet was simple, milk or broths, for his appetite was small; though he was oc-

asionally permitted to have a little raisin wine diluted with water.

" Towards the end of the second week, the cough considerably abated, the colour became more diffused, the purging was inconsiderable, and his appetite amended; and, with gentle exercise, his strength rapidly returned. The parents continued the use of only three weeks, and at the conclusion of that period the child was perfectly recovered. It is now a year and a half since his disposition, and from that time to this he has experienced no return of his former complaints, but is a stout, healthy boy.

" It was in consequence of witnessing this singular recovery, that a woman, whose child was nearly in the same situation, determined to try the efficacy of the yeast, and in a month the patient was restored, to the inexpressible joy of the mother and surprise of those who had been acquainted with the circumstances. During the administration of the yeast to both, no other medicine was resorted to, nor were they attentive to diet. I never knew it given in such a case before; but as it has been productive of the most happy effects in the two first, I shall not only recommend it to every one, but the first opportunity that occurs shall give it another trial.

" The yeast preferred was the newest, because it was not so impotent as the stale, and to both the children it was given by itself. It neither occasioned nausea, flatulence, nor pain."

We must not, however, put too much confidence in medicines of this kind. Mild astringent cordials, especially wine and peruvian bark, are the only resources in these disorders. Dr. Fordyce gives the following:

(No. 46.) R Vin. Rubr. Lusit. ℥ij.
Cort. Peruv. }
—— Cinnam. } a a ʒij.

Digere per horas xlvij. calore 100 grad. Therm. Fahren. et cola. Capt. Coch. iijj. ter indies.

Sir John Pringle observes, in the low state of these fevers, and in great sinkings, which either come after unseasonable bleedings or long want of nourishment, port wine proved a most grateful and efficacious cordial, to which nothing was comparable. The common men had an allowance, from a quarter to half a pint in a day, of a strong kind, made into whey, or added to the panada which was their ordinary food. But to others out of the hospital, he usually prescribed Rhenish or a small French wine, whereof some consumed near a quart per day, and part of that undiluted. Nay, so great was the virtue of wine in this stage of the fever, that several were known to recover from the lowest condition, when, refusing the bark on account of its taste, they took nothing but a little panada with wine and a volatile diaphoretic mixture (No. 8.) every two or three hours by turns. Perhaps

there is no rule more necessary in this state, than not to let the patient when low remain long without taking something cordial and nourishing; as many have been observed past recovery, by being suffered to lie a whole night without any support about the time of the crisis. In the advanced state of this fever the sick are remarkably low; and therefore Hoffman advises in such cases, that they should be constantly kept in bed, and not permitted even to sit up in it. In the last stage of this fever, as well as in that of the sea-scurvy, it would seem that the force of the heart was too small to convey the blood to the brain, except when the body is in an horizontal posture.

But, however necessary wine and bark may be in the low stage of this fever, we must remember, that these remedies are to be administered only as antiseptics and supporters of the *vis vitæ*, without aiming at thoroughly raising the pulse or relieving the head, or forcing a sweat by them, before nature points that way, and which Sir John Pringle seldom observed before the 14th day. For though the patient may die before that time if he has been largely bled, or if the cordial medicines have been given him too freely, yet such means as he made use of were not powerful enough to bring on a crisis sooner.

In the low state of the hospital-fever, a stupor was a constant attendant, which was very apt, in the evening, to change to a slight delirium. If this was all, as being in the common course, nothing was done. But if the delirium increased upon using wine, if the eyes looked wild, or the voice became quick, there was reason to apprehend a phrenitis, and accordingly it was observed, that at such times all internal heating medicines aggravated the symptoms; and in these cases blisters were of the greatest service. Fomentations of vinegar and warm water for the feet, our author is of opinion, would answer better than either sinapisms or blisters, provided they were long enough and often enough applied. In the inflammatory fevers, he has known these fomentations have little effect for the first hour, and yet succeed afterwards. For internal medicine, the bark was omitted for some time, but the patient was continued with an acidulated drink, *viz.* barley-water and vinegar; and treated also with *camphor*, *pulvis contrayerva compositus*, and *nitre*, as was usual in the beginning of the fever. If the delirium was of the low kind, decoction of the bark with wine were the only remedies: for in no instance was the delirium perfectly removed till the time of the crisis. It must also be observed, that a delirium may arise in putrid fevers from two opposite errors; one from large and repeated bleedings, and the other from wine and the cordial medicines being taken too early. It appears therefore how nice the principles are that regard the cure; as neither a hot nor a cool regimen will answer with every patient, or in every state of the disease.

It is probable, that, in cases where antimonials are to be given, their being joined with camphor would lessen, if not entirely obviate, the existing objections to their use.

Dr. Fordyce says, that if in the latter part of the disease, with great weakness, there be considerable remission without stupor; or if there be general relaxation of the secretories;

No. 47.) \mathcal{R} Aq. Menth. Vulg. $\mathfrak{z}\mathfrak{j}\mathfrak{ss}$.

Pulv. Cort. Peruv. gr. xv. ad $\mathfrak{z}\mathfrak{ss}$.

Syr. e Cort. Aur. $\mathfrak{z}\mathfrak{i}\mathfrak{j}$.

Aq. Menth. Piper. $\mathfrak{z}\mathfrak{j}$. M. F. Haust. Vel loco

Pulv. Cort. Peruv. decoct. sequent. $\mathfrak{z}\mathfrak{ss}$. ad $\mathfrak{z}\mathfrak{j}$.

No. 48.) \mathcal{R} Cort. Peruv. sub. Pulv. $\mathfrak{z}\mathfrak{j}$.

Aq. Font. $\mathfrak{lb}\mathfrak{i}$.

Coquantur simul per decem minut. prim. vase clauso.

Capt. quartâ vel sextâ quâque horâ.

Dr. Saunders recommends the following:

No. 49.) \mathcal{R} Decoct. cinchonæ $\mathfrak{z}\mathfrak{v}\mathfrak{j}$.

Tincturæ ejusdem comp. $\mathfrak{z}\mathfrak{j}$.

Acid. vitriol. dilut. $\mathfrak{z}\mathfrak{j}$.

Syr. aurant. cort. $\mathfrak{z}\mathfrak{ss}$. M.

Hujus misturæ cochlearia iv. horis duabus interpositis, capienda.

Dr. Fordyce expresses a doubt of the propriety of employing simple stimulants in this disease; but where the cordial and antiseptic plan is thought proper, the following formulæ, adopted from Pringle and Huxham by the late Dr. Hugh Smith, deserve attention:

No. 50.) \mathcal{R} Rad. serpentar. virgin. contus.

Cort. Peruv. pulv. aa. $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$. coq. in

Aq. fontan. $\mathfrak{lb}\mathfrak{j}$. ad dimidiam;

Colaturæ adde

Aq. cinnam. $\mathfrak{z}\mathfrak{j}\mathfrak{ss}$.

Syr. e cort. aurant. $\mathfrak{z}\mathfrak{i}\mathfrak{j}$.

M. capiat coch. $\mathfrak{i}\mathfrak{i}\mathfrak{j}$. quarta vel sexta quaque hora.

(No. 51.) \mathcal{R} Cort. Peruv. opt. pulv. $\mathfrak{z}\mathfrak{i}\mathfrak{j}$.

Flavedin. aurant. hispal. $\mathfrak{z}\mathfrak{j}\mathfrak{ss}$.

Rad. serpentar. virg. $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$.

Croci anglican. $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$.

Coccinel. $\mathfrak{z}\mathfrak{i}\mathfrak{j}$.

Spt. vini Gallic. $\mathfrak{z}\mathfrak{x}\mathfrak{x}$.

St. infusio clausa vase per dies aliquot (tres saltem quatuorve) deinde coletur.—Dosis $\mathfrak{z}\mathfrak{j}$. ad $\mathfrak{z}\mathfrak{ss}$. quarta, sexta, vel octava quaque hora cum acidi vitriolici diluti gtt. x. xv. vel xx. ex quovis vehiculo appropriato.

So also the following, from the pharmacopœia of Guy's Hospital:

(No. 52.) \mathcal{R} Balsami Peruviani \mathfrak{z} iv.

Ovi unius vitelli

Aquæ Menthæ sativæ \mathfrak{z} ij.

Syrupi zingiberis \mathfrak{z} ss. M. sumat coch. \mathfrak{ij} . vel \mathfrak{iv} . bis terve indies.

If a diarrhœa came on in the decline of the fever, Sir John Pringle observes it was moderated, but not suppressed, by adding an opiate to the usual medicines. For though the looseness may be considered as critical, yet as the sick were too low to bear evacuations, there was a necessity for restraining it in some measure; and it has often been observed, that when it has been treated in this manner, about the usual time of the crisis, the patient has fallen into a gentle sweat, which has carried off the disease. In the worst cases of this fever, and especially when it coincides with the dysentery, the stools are frequently bloody; in which dangerous state, if any thing could be done, it was attempted by medicines of the same kind. In proportion to the putrid nature of the stools, opiates and astringents were used with the greater caution.

If the disease terminated in a suppuration upon one of the parotid glands (for the gland itself does not suppurate), the abscess was opened without waiting for a distinct fluctuation, which might never happen; the pus being often so viscid, that after it was ripe the part felt nearly as hard as if the suppuration had not begun.

Almost every patient, after the fever, complained of want of rest, frequently of a vertigo or confusion of the head, of a continuation of the deafness, or of other symptoms commonly called *nervous*. An opiate was then given at night; and in the day some strengthening medicines, such as the bark and the acid of vitriol. In these cases, the bark was found not only to be the best strengthener, but the surest preservative against a return of the disease. For this last intention the convalescent was ordered about three drachms a-day for six or seven days together; and afterwards, if he remained longer in the hospital, some smaller quantity daily. But if there was any appearance of a hectic fever from an inward abscess, the case was treated accordingly. Upon comparing some of the remaining symptoms of those who recovered, with the condition of the brain in those who died and were opened, Sir John Pringle was induced to think, that some part even of that substance might suppurate, and yet the person recover.

Sometimes the patient falls into an irregular intermittent; which, if not of a hectic nature from an internal abscess, may proceed from neglecting to clear the *primæ viæ*. For it is easy to conceive, that after a long fever of such a putrid nature, attended with languor of the bowels, the *fæces* may be so much accumulated, and so corrupted, as to occasion new disorders. In

such cases, after proper evacuation by a purge, the bark was almost an infallible remedy.

The Yellow Fever.

Typhus cum flavedine cutis.

Typhus icterodes, *Sauv.* sp. 7.

Febris flava Indiæ Occidentalis, Warren. Malignant Fever of Barbadoes, *Hillary's Diseases of Barbadoes.* *Lining*, on the Yellow Fever of South Carolina; *Edin. phys. and liter. Essays*, vol. ii. *Mackittrick de Febre flava Indiæ Occidentalis*, *Edin.* 1766. Endemial Causus. *Moseley on Tropical Diseases.*

1. *History.*] The following account of the rise and progress of this disease, to which, in the author's opinion, the appellation of *endemial causus* may be more properly applied, is given by Dr. Moseley in his excellent treatise on Tropical Diseases.

"The *Endemial Causus*," says he, "or *Yellow Fever*, which is the terror of Europeans newly arrived in the West-Indies, is called by the French la *Maladie de Siam*."

"Monsieur Pouppé Desportes, who practised physic at St. Domingue from 1732 until 1748, and who had more expérience, and has written from better information on the diseases of that colony, than any of his countrymen, says, this fever was so called from its being first taken notice of in the island of Martinique, at a time when some vessels were there from Siam."

"Le premier événement qui l'aît fait remarquer, a été la relâche, à la Martinique, d'une nombreuse escadre qui venoit de Siam, & dont l'équipage, pendant son séjour dans cette colonie, fut affligé d'une fièvre maligne, ou pestilentielle, qui fit périr un grand nombre de matelots." And notwithstanding this account of it by M. Desportes, he immediately says, 'Cette maladie attaque très rarement les créoles ou les sauvages habitans de l'île; les Européens destinés à vivre sous un climat plus tempéré, en sont, pour ainsi dire, les seules victimes*.'

"This account, though probably true enough as to the time of its being first observed in the French colonies, is extremely incorrect in other respects: for M. Desportes has not only admitted a supposition that the disease originated among those East-Indian mariners, but calls it pestilential, and says, that Europeans are almost the only victims of it."

"The generality of the French writers say that it was brought directly from Siam, in a merchant ship, and communicated to the people of Martinique, whence the contagion was carried to St."

* Vol I. p. 191 & 192, *Hist. des Malad. de St. Domingue.*

Domingue, but that the sailors were the only people attacked by it, whence it was also called *la fièvre matelotte**.

“ This account of the origin of the disease has been universally credited by the French writers, who have not been at the trouble to consider, that a disease brought from Siam in the East Indies, in a similar latitude to the West-Indian islands, would be most likely to affect the natives, living in a climate similar to that in which the disease originated, rather than Europeans of so different a temperament of body. But the fact is, that this disease never attacks either white or black natives of hot climates; neither was it brought from Siam: and though it is possible, from the heat of the climate, that it may frequently appear there, or in any other tropical country (though Barrere says it is unknown at Cayenne†), no history of that country, that I have yet met with, mentions such a disease‡; notwithstanding what many writers have boldly advanced to the contrary§.

“ The Spaniards call it the *vomito prieto*, or the black vomiting, from its most direful symptom. By this disease their galleons sometimes lose the principal part of their men, in the West Indies, particularly at Porto Bello and Carthagena.

“ That this disease is a species of the *καυρος* of Hippocrates||, Aretæus**, and Galen††, that is, the *febris ardens*, or *causus*, as it is called, I think there can be no doubt;—aggravated by climate—incidental only to the gross, inflammatory, and plethoric—at any season of the year—and totally different from the remittent

* The seamen at the Cape, in Hispaniola, in the summer of 1734, were nearly half of them cut off by this fever. It has often since that time made its appearance there among the sailors, and has been very fatal.

† Nouvelle Relation de la France Equinoxiale, p. 61.

‡ Loubere, in his History of Siam, part ii. chapter iv. says, “ Among the most dangerous diseases there, are fluxes and dysenteries, from which Europeans that arrive at this country have more trouble to defend themselves than the natives of the country, by reason that they cannot live sober enough. The Siameses are sometimes attacked with calentures, in which the transport of the brain is easily formed, with defluxions on the stomach. Moreover, inflammations are rare, and the ordinary continued fever kills none, no more than other places in the torrid zone. The external does so exceedingly weaken the natural heat, that of an hundred sick persons, Mr. Vincent, the provincial physician, declared, that he scarce found one that had the fever, or any other hot distemper. There are a great many cancers, abscesses, and fistulas. The erysipelas is here so frequent, that among twenty men, nineteen are infected with it.” &c.

§ Warren, a physician at Barbadoes, in his treatise concerning the Malignant Fever in Barbadoes, written in 1739, says, “ it is called *la Maladie de Siam*, from a country of that name in the East Indies, where it is a constant inhabitant ” Page 3.

|| Lib. de Acutorum Morborum Viâu, et Lib. de Affectionibus.

** De Cauſo, Lib. II. Cap. 4. de Cauſ. et Sign. Acut. Morb.

†† Comment. 4. in Lib. Hipp. de Acut. Morb. Viâu.

bilious fever, to which all habits of body are subject, in hot climates, particularly after rains, and in the fall of the year.

“ The *causus*, the most ardent fever in temperate climates, as described by the fathers of phÿsic, is a disease seldom seen in these northern parts of Europe; and never attended with that violence of symptoms, which accompanies the same description of disease in hot climates. And whether in latitudes so mild as those of Spain, Italy, Greece, and the Archipelagan islands, the *causus* has ever been attended with black vomiting, as in the West-Indies, I cannot tell. Lommius mentions the vomiting of blood, and voiding black liquid stools, and black urine*.

“ Critical, and symptomatical yellowness of the skin in the *causus* is enumerated among the symptoms by Hippocrates†; and the accurate Lommius particularly mentions the danger of that appearance before the seventh day; ‘grave esse periculum significatur ubi aurigo ante septimum diem oritur‡.’

“ The affinity of the symptoms, progress, and termination of a *causus*, in Europe, to those of this fever of the West-Indies, excepting the black vomiting, leaves no room to doubt that the difference of climate constitutes all the difference that is found between them. Therefore I have adopted the name of endemial *causus*; the propriety of which, I hope, will be justified in the description of the disease.

“ The black tongue is always mentioned as a symptom in the *causus*; of which appearance Hippocrates has made a judicious discrimination, that all other writers have omitted—The tongue, he says, ‘primum, flava est; sed procedente tempore nigrescit. Si igitur per initia nigrescat, celeriores sunt liberationes; si vero postea, tardiores§.’ Which is exactly the case in the yellow fever.

“ Trallian says, in the genuine *causus* the tongue is black, but not in the spurious *causus*; yet he considers the latter as the most dangerous disease||: and Lommius speaks of the danger of the tongue being first dry, then rough, then black and foul¶.

“ Hippocrates mentions, in other places, some circumstances not enumerated in his description of the *causus*, which we find correspond with the yellow fever; and are convincing proofs that he had seen fevers attended with a vomiting of black blood (what the ancients sometimes termed *black bile*), as in his prognostics he often mentions the fatality of that symptom; and some that were equally rapid with this disease.

* Lib. I. Med. Obs.

† L. de Judicat.

‡ Loc. cit. & Hippocrat. Aphor. 62. Sect. 4.

§ Lib. de Diebus Judicatoriis, Cap. 5.

|| Lib. XII. Cap. 3.

¶ Loc. cit.

“ Of the *causus*, he says, ‘*febris ardens fit, quum resiccatae venulae tempore æstivo, acres et biliosos ichoras ad se attraxerint; ac febris multa detinet, corpusque quemadmodum ab ossuariâ lassitudine affectum, laborat, doletque. Fit plerumque tum ex longo itinere, tum longa siti, quum arefactae venulae acres calidasque fluxiones ad se attraxerint. Fit vero lingua aspera, et sicca, valdeque nigra; partiumque ventris morsu dolet; dejectiones tum liquidæ, tum pallidæ fiunt; sitis adest vehemens, et vigiliae, atque interdum mentis alienationes*.*’

“ He observes, also, ‘*febris et sitis vehemens afficit, lingua aspera et nigra, spiritus sanè calore redditur, color aliquantulum biliosus fit, et sputa biliosa. Atque ægro exteriora frigida sunt, interiora verò admodum calent†.*’

“ He says there is another species of *causus*, in which, ‘*alvus subducitur; siti scatet; lingua aspera, sicca, falsa; urinæ suppressio; vigilia; extrema refrigerata‡.*’

“ Of the two species of this disease, mentioned by Hippocrates, Galen denominates one a genuine and the other a spurious *causus*; one was supposed to proceed from bile, the other from phlegm. In the former, the tongue was black; in the latter not. Trallian, and other writers, have adopted this distinction. Galen also remarks, that the coldness of the extremities is a symptom only of the spurious *causus*, and then only when the fever is malignant; but that in the genuine, bilious, and burning *causus*, the heat of the body is extended to the extremities.”

After quoting various passages from Aretæus and Lommius in defence of the name Dr. Moseley has thought proper to adopt when speaking of what has, in less definite language, so universally been called yellow fever, he proceeds thus:

“ Notwithstanding that degree of *causus* which we call the yellow fever, appears from the nature of the disease to be indigenous to the torrid zone, there was no notice taken of it in the West-Indies until nearly two centuries had elapsed from their discovery.

“ Ulloa says, ‘the vomito prieto, was unknown at Carthage, and all along the coast, till the years 1729 and 1730. In 1729 Don Domingo Justiniani, commodore of the *Guarda Costas*, lost so considerable a part of his ships’ companies at Santa Martha, that the survivors were stricken with astonishment and horror at the havoc made among their comrades. In 1730, when the galleons under Don Manuel Lopez Pintado came to Carthage, the seamen were seized with the same dreadful

* De Acut. Morb. Victu, Sect. 4. Art. 1, 2, 3, 4.

† De Affectionibus, Cap. 3.

‡ De Acut. Morb. Victu, Sect. 4. Art. 13, 14.

mortality; and so sudden were the attacks of the disease, that persons walking about one day, were the next carried to their graves. Unhappily, after all the experiments of the surgeons of the galleons, and physicians of the country, no good method of treating the disease was discovered; no specific for curing it, nor preservative against it.'—Voyage to South America, book I. chap. 5.

“Warren, though he lived at Barbadoes in 1739, supposes it never appeared in that island until about the year 1721, and that it was then brought from Martinique, in the *Lynn* man-of-war. He says, the second appearance of it there was in 1733, and that it then came also from Martinique.

“He undertakes to show, that it is a disease of Asiatic extract, and says, that ‘a Provençale fleet arrived at Port St. Pierre in Martinique from Marseilles, on board of which were several bales of Levant goods, which were taken in at Marseilles, from a ship just arrived from St. Jean d’Acre (probably the Ptolemais of the ancients). Upon opening these bales of goods at Port St. Pierre, this distemper immediately shewed itself, many of the people were instantly seized, some died almost suddenly, others in a few days, and some lingered longer; and the contagion still spreading, made great havock at the beginning.’—He says he had this account from Mr. Nelson, an English surgeon, who was seized with the disease in Martinique, and died of it a few days after his arrival at Barbadoes.

“He says, it is ‘probable that the same fever, or one of very near resemblance and affinity, may first have been carried among the American Spaniards (among whom it is now endemic), in somewhat a like manner; and that possibly some peculiar qualities in the air and climate might have fostered and maintained it there ever since.’

“And yet, he says, sea-faring people and new-comers are most obnoxious to it, ‘such as had purer blood, and probably less adult than that of the natives; or of those whose constitutions had been, for many years, fitted and habituated to the climate.’

“How a climate should foster a disease, and a contagious one, and the natives of that climate be exempt from it, I cannot comprehend: but the whole story is fabulous, therefore it is unnecessary to reason on it.

“Towne, who practised in Barbadoes, and who wrote on the diseases of that island in 1726, takes not the least notice of this chimerical origin of the yellow fever, but considers it as an endemial disease in the West Indies; to which Europeans are subject on their first arrival: and Hillary, who wrote long after both of them, in 1759, says, it is ‘indigenous to the West-Indian islands, and that it most commonly seizes strangers, especially those who come from a colder or more temperate climate.’ He

says, ‘a better enquiry would have informed Warren that this fever had appeared in Barbadoes, and the other West-Indian islands, many years before; for several judicious practitioners who were then, and now are living (about the year 1760), whose business was visiting the sick, some of them almost eighty years of age, remember to have seen this fever frequently in this island, not only many years before that time, but many years before that learned gentleman came to it.’

“Hughes, who was not himself a medical man, says, in his *Natural History of Barbadoes*, in 1750, ‘Doctor Gamble remembers that it was very fatal here in the year 1691, and that it was then called the new distemper, and afterwards Kendal’s fever, the pestilential fever, and the bilious fever. The same symptoms did not always appear in all patients, nor alike in every year, when it visited us. It is most commonly rife and fatal in May, June, July, and August, and then mostly among strangers; though a great many of the inhabitants, in the year 1696, died of it; and a great many at different periods since.’

“Warren, positive as to the origin and pestilential nature of this fever, invented a treatment (in which bleeding was seldom or never to be performed, and the patient to take heating alexipharmics, and to be covered up with blankets) consistently erroneous with his pathological principles. Yet among all this perversion of reason, the rays of an excellent understanding frequently break forth, through the clouds of hypothetical chaos.

“But Warren addressed his book to Mead, whose tenets he had imbibed; and Mead was the Archimedes of physic:—give him but his position, and the whole *Æsculapian* world was turned upon the axis of a syllogism.—Nature was in those days empiricism, and contagion and infection were fashionable doctrines.

“Thucydides ventured only the reputation of common report, in tracing the plague of Athens through Africa and Egypt, down from *Æthiopia**. But Matthæus Villanus, and Mead, ventured

* Diodorus Siculus, Lib. XII. Cap. 7 gives a very rational account of that distemper. He says, “the Athenians during this incursion, durst not come into the field, but kept close within the walls of their city; by reason whereof a great plague raged among them. For a multitude of all sorts of people being crowded together, it may be reasonably concluded, that through the straightness of the places, the air was corrupted and caused the infection.” And of the second plague, he says, “Abundance of rain had fallen in the winter, by reason whereof the earth being over-wet in many places, especially in low and hollow grounds, the water lay like standing pools; and those being putrefied and corrupted by the heat of the summer, thence proceeded a mist of gross and stinking vapours, which corrupted the air, as it often happens about filthy marshes; and besides, the want of food much advanced the progress of the disease; for the year before, the fruits, by too much rain, were crude and unwholesome.” “There

much farther; the former found no difficulty in bringing the plague, which originated in Venice in 1348, from Greece; and the latter in making the *sudor anglicanus* a mutilated plague, and transporting it from the siege of Rhodes by the Turks, notwithstanding the disease appeared five times, after long intervals, in this country, where it unquestionably was a genuine endemic. However, neither of these two gentlemen would, I believe, have ventured to follow the contagion of the yellow fever from Palestine to Marseilles, and from Marseilles over the Atlantic Ocean, to the Western world.

“A French author, in a publication in 1776, at Paris, entitled *Des Moyens de conserver la Santé, &c. aux Antilles ou Climats Chauds et Humides de l'Amérique*, speaking of the yellow fever, says, ‘c’étoit une sorte de fièvre colliquative très-aigue.’—‘Cette maladie qui étoit contagieuse, fut d’abord traitée par d’abondantes saignées, mais sans succès; on fut plus heureux moyennant l’usage intérieur des acides, et leur application extérieure. Ce que nous avançons ici n’est que sur le rapport des autres; cette maladie n’existoit plus à notre arrivée aux Antilles.’

“It is impossible to say what could give this gentleman an idea that the application and use of acids would cure the yellow

“There was likewise a third cause of this distemper, which was this. The Etelian winds (north winds), which come at stated and certain times of the year, did not blow this summer, by whose gentle breezes the violent heat was constantly allayed, before, at other times; so that the heat being now excessive, and the air as it were inflamed, men’s bodies now wanting the usual refreshment, contracted an evil habit, from whence arose, through the vehement and immoderate heat, all sorts of burning distempers; and hence it was, that many seized with this disease, to free themselves from the burning heat that was in their bodies, cast themselves into pits and wells. In the beginning of the distemper, before the sun arose, through the coldness of the air that came from the water, their bodies would shake and tremble; but about noon, being so close, and shut up together, they were suffocated with heat. At first, catarrhs and swellings of the throat came on, caused by the stench of the bodies that lay unburied, and the putrefaction of the soil. Then followed fevers, pains in the back, heaviness of the loins, dysenteries, blotches, and boils, over the whole body. Thus were they tormented by the plague. Others were stricken mad, and ran about the camp like wild beasts, and beat every person they met. All help of physicians was in vain, both by reason of the violence of the distemper, and the sudden dispatch it made of many; for in the midst of great pains and horrible torments they died, commonly on the fifth, or at most on the sixth day. But the Athenians judged that so grievous a distemper was from God, and therefore, according to the charge given them by the oracle, they purged the island of Delos, which was formerly dedicated to Apollo, polluted, as they conceived, by burying many dead bodies there. Therefore all the graves of the dead were dug up, and the urns were transported to the next island, Rhene; and a law was made that it should not be lawful for any, for the time to come, either to bury, or to bear a child in Delos.”

fever, or what could induce him to suppose it was extinct; but the following curious questions are not to be omitted. They will serve as a full sample of their author's knowledge, and justify the leaving him, for something more relative to our subject.

“ ‘ Quelles ont été ses causes qui probablement n'ont été que passageres? Quelles ont été celles de son extinction? Les causes de cette maladie existoient-elles dans le pays? Se rencontroient-elles dans les bâtimens? Ou étoit-ce dans l'atmosphère qu'on traversoit dans la route?’ ”

“ In the endemial causus of the West Indies, some of those symptoms which have given names to the disease, are now but seldom seen, unless when the patient has applied for advice too late, or where improper advice has been unfortunately pursued: nor did I ever see, or hear of an instance, which Lind supposes may happen, that the ‘ black vomit may attack a man, when newly arrived there, without any previous complaint;’ nor of this disease coming on with ‘ an uneasy itching sensation commonly in the legs, and upon pulling down the stockings, streams of thin dissolved blood followed, a ghastly yellow colour quickly diffused i- self over the whole body,’ &c. The former, unquestionably, is a symptom of the endemial causus, though not at the period of it Lind suggests; but the latter is no symptom of this disease, nor, I believe, of any other.

“ That the black vomiting appears earlier in some cases than in others, is certain; and the earlier it appears, the greater certainty there is in the prognostic of immediate death*.

“ From the various names given to this disease, improperly taken from its ultimate, and not from its primary symptoms, many difficulties have arisen to young practitioners, and to strangers in the West Indies: and this confusion of terms has often been productive of fatal consequences in practice.

“ Towne calls it, *febris ardens biliosa*; Warren, a malignant fever; and Hillary, a putrid bilious fever.”

After noticing the contests which agitated these gentlemen respecting the propriety of terming it bilious, Dr. Moseley thinks he may venture to assert, that neither of them had been able to decide whether bile is the cause or the consequence of the disease in question. He then proceeds to observe on the eventual importance of giving true and appropriate names to diseases of so fatal a description. He says,

“ It is my opinion, that the importance of the name of this fever has not been sufficiently considered; and Hillary, though

* Quibuscunque morbis incipientibus, si bilis atra sursum, aut deorsum prodeat, lethale.
Hippocrat. Aphor. 22. Sect. 4.

he disapproves of the appellation which some have given to it, evades the subject himself, as a dispute only about words.

"I own I differ from him widely; for among the mischiefs which attend misnaming this fever, or giving it a name that conveys no idea of its first appearance, a stranger will not know what disease it is when he see it—until accompanied by its fatal attendants, a yellow skin and black vomiting.

"If this disease be called a malignant fever, the idea which is annexed to a malignant disorder, will influence the treatment of it; such practice as is necessary in an inflammatory disease, will never be thought of here, and the same mistakes will be committed by others, as were committed by Warren; who, from thinking it not only malignant but pestilential and contagious, instead of bleeding, and purging, on which, in the beginning, the cure solely depends, he began by covering the patient up, and stifling him with bed-clothes, and alexipharmics, which must, as Hughes observes, 'have very often failed.'

"If it be denominated a putrid bilious fever, what person in treating a putrid fever would think of large and repeated bleeding in the beginning?—If it were a putrid bilious fever, such practice would certainly be improper; therefore, surely this term also must have an injurious tendency.

"I have used the word yellow in compliance with custom; but I even distrust that name: as the inexperienced may be looking out for that appearance, and not find, until it is too late, the disease he has to contend with. Indeed the yellowness of the skin, like the black vomiting, is not an invariable symptom of this fever;—those who are fortunate enough to recover, seldom have it; and many die without its appearance. Besides, the yellowness alone, leads to nothing certain; it may arise from an inoffensive suffusion of bile, as well as from a gangrenous state of the blood."

With these sentiments we find Dr. Fowle, who has lately written a treatise on fevers in the West Indies, coincides.

"Very early after my arrival in the country," says Dr. Fowle, "I observed that persons attacked with fever, in almost any situation, very generally became yellow. This soon led me to conceive it merely a concomitant symptom, and by no means such as could be sufficiently characteristic of any one fever, to give it a particular denomination; it also led me to discover the cause of the variety of symptoms attributed by different authors to the yellow fever, and to account for successful methods of cure which were often diametrically opposite to each other. The longer I remained in the country, the more I was convinced of the danger attendant on giving a name to one disease from a symptom common to so many."

Dr. Moseley very properly observes, that the term we should

use to denote a disease “*should agree with some circumstances that characterize its attack, or first appearance.*” The circumstances which characterize this, he says, agree with no fever, but the *causus*; nor is this disease any more entitled to the name of *putrid*, than the small-pox, or any other acute disease; which may, after it has passed its inflammatory period, terminate with putrid symptoms.

“The truth is,” says Dr. Moseley “that this disease is in the highest degree possible, an *inflammatory* one; accompanied with such symptoms, in a greater extent, as attend all inflammatory fever, and most strikingly the reverse of any disease that is putrid, or of one continued exacerbation*. It obeys no particular season of the year; and attacks also such people, and under such circumstances, as are seldom the objects of putrid diseases.

“In the history of this fever, a multitude besides those whom I have named, have tried their strength, in vain; having done nothing more than copy those originals: with the addition, perhaps, of some trifling medicine, or unimportant observation. But the symptoms have always been better described, than the disease has been treated.”

The author concludes what appears to belong to the account of the origin and name of this fatal malady, by observing, that an attentive practitioner may describe a disease, though he may not know how to treat it properly; for though there can be but one way that is just, in describing a disease, conformably to the uniformity of nature’s laws, yet there may be several ways of curing it; which nature herself adopts, and yet does not pursue without deviation.

It is possible many of our readers may not implicitly adopt these sentiments of Dr. Moseley, however judicious; nor may it be an easy task for us to remark in a satisfactory way on a disease concerning which so much difference of opinion has existed amongst medical men: we therefore simply state what have been the doctrines and practice of the best writers, even of those which some may consider obsolete, because not exactly in unison with recent systems, and leave the reader to form his own conclusions.

2. *Description.*] This is one of the most fatal diseases to which the inhabitants of warm climates are subject, and is the same, as the generality of writers assert, with that called, from one of its worst symptoms, the *black vomit*, which is so terribly destructive in some of the warm parts of America, particularly at Carthagera. The yellow or *putrid bilious* fever, as it is otherwise

* *Differt autem febris ardens à continente putrida, eo quod hæc ex sanguine putrefacto conflat, et à principio usque in finem unam habet exacerbationem.*” Aetius, Tetr. 2. Sermon. 1. Cap. 77.

called, most commonly seizes the patient at first with a faintness, then with a sickness at the stomach, accompanied mostly with a giddiness of the head; soon after with a slight chillness and horror (very rarely with a rigor), which soon is followed by a violent heat and high fever, attended with acute darting pains in the head and back. A flushing in the face, with an inflamed redness and a burning heat in the eyes, great anxiety and oppression about the præcordia, are the pathognomonic signs of the disease; especially when attended with sickness at stomach, violent retchings, and bilious yellow vomitings, with frequent sighing. The pulse is now generally very quick, high, soft, and sometimes throbbing, but never hard: in some it is very quick, soft, low, and oppressed; the respiration quick, full, and sometimes difficult; the skin very hot, and sometimes dry, though more frequently moist. Blood taken from the patient, even at the very beginning of the disease, is often of an exceeding florid red colour; much rarefied and thin, and without the least appearance of size; and the crassamentum, when it has stood till it is cold, will scarce cohere, but fluctuates; the serum is very yellow.

Most of the above-mentioned symptoms continually increase, and are much aggravated: the retching and vomiting become almost incessant; the anxiety great, and sighing frequent; great restlessness; continual tossing; no ease in any posture; little sleep, and that disturbed and uneasy, and without any refreshment to the sick: and when they are fainting, they turn yellow about the face and neck, instead of turning pale: and as the fainting goes off, they recover their natural colour. These symptoms generally continue to the third day, though sometimes not longer than the first or second, in others to the end of the fourth: the first shows the greater dissolution of the blood, and the greater malignity of the disease; the last, the contrary; which the improper manner of treating the disease sometimes hastens and increases, or the proper method retards. This may be called the first stadium of the disease, and generally ends on the third day.

Blood taken from the arm on the second or third day, is much more dissolved, the serum more yellow, and the crassamentum florid, loose, scarce cohering, but undulates like fizy water when shaken, and sometimes has dark blackish spots on its surface, showing a strong gangrenescent diathesis.

About the third day, the pulse, which was quick and full before, now generally sinks greatly, and becomes very low: though sometimes it remains very quick, yet in others it is not much quicker than when the patient is in health, but is always low; the vomiting becomes almost incessant if not so before, and the matter thrown up is black; the patient then becomes comatose, with interrupted deliria. The thirst in some is very great, in others but little; the pulse still low and quick, attended with

cold clammy sweats, and sometimes with deliquium. The eyes, which were inflamed and red before, and began to be of a more dusky colour, now turn yellow; and this yellowness also soon after appears round the mouth, eyes, temples, and neck, and in a short time diffuses itself all over the body. But this yellowness is so far from being always an encouraging prognostic, as some would have it, that it most commonly proves a mortal symptom. Sometimes indeed, though seldom, this suffusion of bile upon the surface has proved critical; but then it did not come on till the eighth or ninth day, nor appear till the coma and the other bad symptoms began to abate; and then in proportion as the yellowness increases, all the bad symptoms decrease. But the case is most commonly quite the reverse; especially when the yellowness comes soon on: and then it is not only symptomatical, but ushers in the most fatal symptoms of the disease, viz. a deep coma, a low, vermicular, and intermitting pulse, great hæmorrhages from various parts of the body, a delirium with laborious and interrupted respiration, great anxiety, deep sighing, restlessness, a subfultus tendinum, coldness of the extreme parts first, and then all over the body, a faltering of the speech, tremors, and convulsions, which are soon after followed by death. So that from the first appearance of the yellowness we may say the patient is in the last stage of the disease, whether it terminates in death or recovery.

It has been observed, that, in some strong sanguine constitutions, when the patients have not been bled to a sufficient quantity in the beginning of the disease, the pulse has continued full, strong, and rapid, but never hard; the face flushed, eyes inflamed; the tongue dry, with great thirst and heat, till the second or last stage of the fever is come on, when the pulse has suddenly sunk, and death soon after ensued. Yet in others, who seemed to be of a plethoric habit, the tongue has been moist, all along, though they have been delirious most of the time, and the heat of their skin and the strength and quickness of their pulse have continued, after the first stage of the disease was over, pretty near to that of their natural state in health, till within a few hours of their death: and when they have had a coma on them, one who is not well acquainted with the nature of this disease would, from their pulse, heat, breathing, and other symptoms, have taken them to be in a natural sleep. Others, when the pulse has began to sink, and the fatal period seemed to be just approaching, to the great surprise of all present have recovered their senses, sat up, and talked pretty cheerfully for an hour or two, and in the midst of this seeming security have been suddenly seized with convulsions, which carried them off immediately.

In the latter stage of this fever, the blood is so attenuated and dissolved, that we frequently see it flowing not only out of the nose and mouth, but from the eyes, and even through the pores

of the skin; also great quantities of black, half-baked, or half-mortified blood, are frequently voided both by vomiting and by stool, with great quantities of yellow and blackish putrid bile by the same passages; and the urine, which was before of a high icterious colour, is now almost black, and is frequently mixed with a considerable quantity of half-dissolved blood. The pulse, which was much sunk before, now becomes very low, unequal, and intermitting; the breathing difficult and laborious; and the anxiety inexpressible: an oppression with a burning heat about the præcordia come on, though the extremities are cold, and often covered with cold clammy sweats: a constant delirium follows; and then a total loss of the outward senses as well as the judgment, with livid spots in many parts of the body, especially about the præcordia; and sometimes gangrenes in other parts of the body, which are very soon succeeded by death.

In a short time after death, the body appears much more full of livid large mortified spots, particularly about the præcordia and hypochondres, especially the right; which parts seem, even from the first seizure, to be the principal seat of this terrible disease; and, upon opening the bodies of those who die of it, we generally find the gall-bladder and biliary ducts turgid, and filled with a putrid blackish bile; and the liver, stomach, and adjoining parts, full of livid or blackish mortified spots; and the whole corpse soon putrifies after death, and can be kept but a few hours above ground.

Dr. Lind is of opinion, that the remarkable dissolution of the blood, the violent hæmorrhages, black vomit, and the other symptoms which characterize the yellow fever, are only accidental appearances in the common fever of the West-Indies; that they are to be esteemed merely as adventitious, in the same manner as purple spots and bloody urine are in the small-pox, or as an hiccough in the dysentery: like these they only appear when the disease is attended with a high degree of malignity, and therefore always indicate great danger. This opinion, he thinks, is confirmed by an observation of Dr. Wind's, that, in 1750, the crew of a Dutch ship of war were distressed by the yellow fever, accompanied with the black vomit; but when the ship left the harbour, and changed the noxious land-air for one more healthy, the fever continued, but was not accompanied with the black vomit.

Diseases similar to this fever, Dr. Lind informs us, may arise in any part of the world where the air is intensely hot and unwholesome; and therefore he deems not always just, the notion of its being imported from one part of the world to another. An example of this happened at Cadiz in Spain, in the months of September and October, 1764, when excessive heat, and want of rain for some months, gave rise to violent, epidemic, bilious disorders, resembling those of the West-Indies, of which one hundred persons

often died in a day. At this time the winds blew principally from the south, and after sun-set there fell an unusual and very heavy dew.

This disease began commonly with alternate slight chills and heats, nausea, pains of the head, back, loins, and at the pit of the stomach.—These symptoms were often followed, in less than twenty-four hours, with violent retchings, and vomiting of a green or yellow bile, the smell of which was very offensive. Some threw up a humour as black as ink, and died soon after in violent convulsions and in a cold sweat. The pulse was sometimes sunk, sometimes quick, but often varying. After the first day, the surface of the body was generally either cold, or dry and parched. The head-ach and stupor often ended in a furious delirium, which quickly proved fatal. The dead bodies having been examined by order of the court of Madrid, the stomach, mesentery, and intestines, were found covered with gangrenous spots. The orifice of the stomach appeared to have been greatly affected, the spots upon it being ulcerated. The liver and lungs seemed to be putrid, both from their texture and colour. The stomach contained a quantity of an atrabilious liquor, which, when poured on the ground, produced a sensible effervescence; and, when mixed with acid of vitriol, a violent ebullition ensued. The dead bodies so quickly turned putrid, that at the end of six hours their fetor was intolerable; and, in some of them, worms were found already lodged in the stomach. His Majesty's ship the Tweed being at that time in Cadiz-bay, several of her men were taken ill when on shore, but by being carried on board all of them recovered. Neither did the black vomit, nor any other deadly symptom of that fever, make its appearance in any of the ships,

Till of late years, when we have had such abundant and fatal experience of the disease in our West-India Islands, it was a matter of much dispute, whether the yellow fever be of an infectious nature or not. Some time ago it became an object of consideration before the Right Hon. the Lords Commissioners of Trade and Plantations, where it was urged, among other reasons, for not removing the seat of government and justice in the island of Jamaica from Spanish-town to Kingston, that there was danger from Greenwich hospital, situated near Kingston, of an infection from the yellow fever being frequently communicated to that town. On this subject a physician was consulted, who had long practised in that island, and who gave it as his opinion, that from the yellow fever in that island there was no infection. This was the opinion not only of that gentleman, but of many others who had an opportunity of being well acquainted with this fever in Jamaica. Dr. Lind, however, gave a remarkable instance with which subsequent facts coincide, of its being of an infectious nature.—A gentleman dying at Barbadoes of a yellow fever, his wearing apparel and

linen, packed up in a chest, were sent to his friends at Philadelphia; where, upon opening the chest, the family were taken ill; and the clothes being unluckily hung abroad to be aired, they presently diffused the contagion of the yellow fever over the whole town, by which two hundred persons died. These contradictions, Dr. Lind thinks, can only be reconciled, by supposing the yellow fever in the West Indies to be sometimes of an infectious nature, and sometimes not.

In the description of the same fever by Dr. Lining, as it appears in South Carolina, there are several particulars considerably different from that by preceding writers. According to the former, people complained for a day or two before the attack, of a head-ach, pain in the loins and extremities, especially in the knees and calves of the legs, loss of appetite, debility, and spontaneous lassitude. Some, however, were seized suddenly, without any such previous symptoms. After a chilliness and horror, with which this disease generally commences, a fever succeeded. The pulse was very frequent till near the termination of the fever, and was generally full, hard, and consequently strong; in some, it was small and hard; in others, soft and small; but in all those cases, it frequently varied in its fullness and hardness. Towards the termination of the fever, the pulse became smaller, harder, and less frequent. In some there was a remarkable throbbing in the carotids and in the hypochondria; in the latter of which it was sometimes so great, that it caused a constant tremulous motion of the abdomen. The heat generally did not exceed 102 degrees of Fahrenheit's thermometer; in some it was less; it varied frequently, and was commonly nearly equal in all parts, the heat about the præcordia being seldom more intense than in the extremities when these were kept covered. In the first day of the disease, some had frequent returns of a sense of chilliness, though there was not any abatement of their heat. In a few, there happened so great a remission of the heat for some hours, when at the same time the pulse was soft and less frequent, and the skin so moist, that one from these circumstances might reasonably have hoped that the fever would only prove a remittent or intermittent. About the end of the second day, the heat began to abate. The skin was sometimes (though rarely) dry; but oftener, and indeed generally, it was moist, and disposed to sweat. On the first day, the sweat was commonly profuse and general; on the second day, it was more moderate: but on both these, there happened frequent and short remissions of the sweatings; at which times the febrile heat increased, and the patient became more uneasy. On the third day, the disposition to swe it was so much abated, that the skin was generally dry: only the forehead and backs of the hands continued moist. The respiration was by no means frequent or difficult; but was soon accelerated by motion, or the fatigue of drinking a cup of any liquid. The tongue

was moist, rough, and white, even to its tip and edges. On the second day, its middle in some was brown. On the third day, the whiteness and roughness of the tongue began to abate. The thirst in very few was great. A nausea, vomiting, or frequent retchings to vomit, especially after the exhibition of either medicines or food, came on generally the third day, as the fever began to lessen; or rather as the fulness of the pulse, heat, and disposition to sweat, began to abate. Some indeed, but very few, on the first day, had a vomiting, either bilious or phlegmatic. Very few complained of anxiety or oppression about the præcordia or hypochondria, nor was there any tension or hardness about the latter. On the first day they generally dozed much, but were afterwards very watchful. Restlessness and almost continual jactations came on the second day. A great despondency attended the sick, and the strength was greatly prostrated from the first attack. The pain in the head, loins, &c. of which they had complained before the attack, were greatly increased, and in some the pain in the forehead was very acute and darting; but those pains went generally off the second day. The face was flushed; and the eyes were hot, inflamed, and unable to bear much light. On the first day, many of them at times were a little delirious, but afterwards not until the recess of the fever. The blood saved on venesection had not any inflammatory crust; in warm weather, it was florid like arterial blood, and continued in one soft homogeneous-like mass, without any separation of the serum after it was cold. When there was any separation, the crassamentum was of a very lax texture. The stools, after the first day, were fetid, inclined to a black colour, and were very rarely bilious, soft or liquid, excepting when forced by art; for an obstinate costiveness attended the febrile state. The urine was discharged in a large quantity, was pale, sometimes limpid, and rarely of a higher than a straw colour, except when the weather was very warm, and then it was more saturated, of a deep colour, and discharged in smaller quantities. It had a large cloud, except when it was very pale or limpid; but more generally it had a copious white sediment, even on the first day of the fever. On the second day, the urine continued to be discharged very copiously; in some it was then turbid, and deposited a more copious sediment than on the first day: this sediment was sometimes of a brownish colour; in which case it was generally followed by bloody urine, either about the end of the second or beginning of the third day.—The colour and quantity of the urine, discharged in equal times, were remarkably variable, being now limpid, then of a deeper colour, now discharged in a larger, then in a smaller quantity; which could not be ascribed to any change made either in the quantity or quality of the drink, &c.

The fever accompanied with those symptoms terminated on the third day, or generally in less than seventy-two hours from the

first attack, not by any assimilation or coction and excretion of the morbid matter: for if by the latter, there would have been some critical discharge by sweat, urine, stool, or otherwise, none of which happened; and if by the former, nothing then would have remained but great debility. This fever, however, did not terminate in either of these salutary ways, excepting in some, who were happy enough to have the disease conquered in the beginning by proper evacuations, and by keeping up a plentiful sweat, till the total solution of the fever, by proper mild diaphoretics and diluents. But those who had not that good fortune, however tranquil things might appear at this period (as great debility, and a little yellowness in the white of the eyes, seemed then to be the chief complaint, excepting when the vomiting continued), yet the face of affairs was quickly changed: for this period was soon succeeded by the second *stadium*; a state, though without any fever, much more terrible than the first: the symptoms in which were the following. The pulse, immediately after the recess of the fever, was very little more frequent than in health, but hard and small. However, though it continued small, it became soon afterwards slower and very soft; and this softness of the pulse remained as long as the pulse could be felt. In many, in this stage of the disease, the pulse gradually subsided, until it became scarce perceptible; and this notwithstanding all the means used to support and raise it; and when this was the case, the icteritious suffusion, the vomiting, delirium, restlessness, &c. increased to a great degree. In some, the pulse, after being exceedingly small and scarce perceptible, recovered considerably its fulness; but that favourable appearance was generally of but short continuance. The heat did not exceed the natural animal-heat; and when the pulse subsided, the skin became cold, and the face, breast, and extremities, acquired somewhat of a livid colour. The skin was dry when the weather was cold, but was moist and clammy when the weather was hot. The respiration was natural, or rather slow. The tongue was moist, and much cleaner than in the former stage; its tip and edges, as also the gums and lips, were of a more florid red colour than usual. Very few complained of thirst, though they had a great desire for cold liquors. The vomiting or retching to vomit increased, and in some was so constant that neither medicines nor aliment of any kind were retained. Some vomited blood; others only what was last exhibited, mixed with phlegm; and others again had what is called the *black vomit**.

* That which is called the *black vomit* at first sight appears to be black; but on a more careful examination, it was observed that this colour proceeded from a great quantity of small flakey black substances which floated in the liquor thrown up by vomiting; but the colour of this liquor was much the same with that which the patient had last drank, and was by no means black. Those black flakey substances are the bile mixed with, or adhering to, the *pycus* which lined the stomach. For, upon dissection of those who died of

The retching to vomit continued a longer or shorter time, according to the state of the pulse; for as that became fuller, and the heat greater, the retching to vomit abated, and *è contra*. The inquietude was very obstinate; and when they dozed, their slumbers were but short and unrefreshing. There were some who were drowsy; but these always awaked, after the shortest slumbers, with a great dejection of spirits and strength. The jactations or restlessness were surprising: it was frequently scarce possible to keep the patients in bed; though at the same time, they did not complain of any anxiety or uneasiness; but if asked how they did, the reply was, *Very well*. The debility was so great, that, if the patient was raised erect in the bed, or, in some, if the head was only raised from the pillow, while a cup of drink was given, the pulse sunk immediately, and became sometimes so small, that it could scarce be felt; at this time, they became cold, as in a horripilation, but without the asnerine skin: their lips and skin, especially about the neck, face, and extremities, together with their nails, acquired a livid colour. The delirium returned and increased; it was generally constant in those whose pulse was small and subsiding. The inflammation of the tunica conjunctiva or white of the eyes increased much, but without pain. A yellowness in the white of the eyes, if it did not appear before in the febrile state, became now very observable, and that icteritious colour was soon diffused over the whole surface of the body, and was continually acquiring a deeper saffron-like colour. In some indeed no yellowness was observable, excepting in the white of the eyes, until a little before death, when it increased very quickly, especially about the breast and neck. There were many small specks, not raised above the skin, which appeared very thick in the breast and neck, but less so in the extremities, and were of a scarlet, purple, or livid colour. In women the menstrua flowed, and sometimes excessively, though not at their regular periods.

There was such a putrid dissolution of the blood in this stadium of the disease, that, besides the vomiting of blood formerly mentioned, and the bloody urine soon to be taken notice of, there were hæmorrhagies from the nose, mouth, ears, eyes, and from the parts which were blistered with cantharides. Nay, in the year 1739 and 1745, there were one or two instances of an hæmor-

this disease, it was always observed that the mucus of the stomach was abraded, and the bile in its cystis was black and sometimes very viscid. In a lad who died of this disease in the beginning of the fourth day, and who was immediately opened, the bile was not only black, but had the consistence of thick venice-turpentine, and was exceedingly tough. On the inside of the stomach, there were several carbuncles or gangrenous specks. And in all those who were dissected, and had died of this disease, the same appearances were not only always observed, but likewise the blood was very fluid, and the vessels of the viscera were much distended.

rhagy from the skin, without any apparent puncture or loss of any part of the scarf-skin.

An obstinate costiveness continued in some; in others, the stools were frequent and loose; in some they were black, liquid, large, and greatly fatiguing; in others, when the stools were moderate, even though they were black, they gave great relief; in others, again, the stools nearly resembled tar in smoothness, tenacity, colour, and consistence.

The urine was discharged in a large quantity, in proportion to the drink retained by the patient: it was pale if the patient was not yellow; but if yellow, then it was of a deep saffron-colour: in either case, it had a sediment, or at least a large cloud which remained at the bottom of the glass: in some, it was very turbid; in others it was bloody: and the quantity of blood discharged with the urine bore always some proportion to the state of the pulse; when that became fuller, the quantity of blood in the urine was diminished; when the pulse subsided, the bloody urine increased, and even returned after it had ceased some days, soon after the pulse became smaller. This stage of the disease continued sometimes seven or eight days before the patient died.

When this stadium of the disease terminated in health, it was by a recess or abatement of the vomiting, hæmorrhagies, delirium, inquietude, jactations, and icteritious-like suffusion of the skin and white of the eyes; while, at the same time, the pulse became fuller, and the patient gained strength, which, after this disease, was very slowly. But when it terminated in death, those symptoms not only continued, but sooner or later increased in violence, and were succeeded with the following, which may be termed the third *stadium* of the disease, that quickly ended in death. The pulse, though soft, became exceedingly small and unequal; the extremities grew cold, clammy, and livid; the face and lips, in some, were flushed; in others, they were of a livid colour; the livid specks increased so fast, that in some the whole breast and neck appeared livid; the heart palpitated strongly; the heat about the præcordia increased much; the respiration became difficult, with frequent sighing; the patient now became anxious, and extremely restless; the sweat flowed from the face, neck, and breast; blood flowed from the mouth, or nose, or ears, and in some from all those parts at once; the deglutition became difficult; the hiccoughs and sub-sultus of the tendons came on, and were frequent; the patients trifled with their fingers, and picked the naps of the bed-clothes; they grew comatous, or were constantly delirious. In this terrible state, some continued eight, ten, or twelve hours before they died, even after they had been so long speechless, and without any perceptible pulsation of the arteries in the wrists; whereas, in all other acute diseases, after the pulse in the wrists ceases, death fol-

lows immediately. When the disease was very acute, violent convulsions seized the unhappy patient, and quickly brought this stadium to its fatal end. After death, the livid blotches increased fast, especially about the face, breast, and neck, and the putrefaction began very early, or rather increased very quickly.

This was the progress of this terrible disease through its several stadia. But in hot weather, and when the symptoms in the first stage were very violent, it passed through those stages with such precipitation that there was but little opportunity of distinguishing its different stadia, the whole tragedy having been finished in less than forty-eight hours. It was remarkable, that, 1. The infection was increased by warm and lessened by cold weather. 2. The symptoms in the several stadia were more or less violent, according to the heat or coolness of the weather. In hot days, the symptoms were not only more violent, but in those who seemed in moderate weather to be on the recovery, or at least in no danger, the symptoms were all so greatly heightened, when the weather grew considerably warmer, as frequently to become fatal. In cool days, the symptoms were not only milder, but many who were apparently in great danger in hot days, were saved from the very jaws of death by the weather becoming happily cooler. 3. The disease was generally more fatal to those who lay in small chambers not conveniently situated for the admission of fresh air, to those of an athletic and full habit, to strangers who were natives of a cold climate, to those who had the greatest dread of it, and to those who before the attack of the disease had overheated themselves by exercise in the sun, or by excessive drinking of strong liquors, either of which indeed seemed to render the body more susceptible of the infection. Lastly, the disease proved most certainly fatal to valetudinarians, or to those who had been weakened by any previous disease.

Although from the description which has now been given of the yellow fever, it may appear to be in many particulars very different from the remittent fever of warm climates; yet it is the opinion of many late writers of great accuracy, particularly of Dr. John Hunter in his *Observations on the Diseases of the Army in Jamaica*, that it is to be considered only as a more dangerous form of the same disease. And there can be no doubt that the remittent fever not only appears in different seasons and situations with very different degrees of severity; but also that while the remittent fever prevails in its usual form in the West-India islands, some individuals, particularly those who are newly arrived, will be affected with very remarkable yellowness, as well as bilious and black vomitings.

The following description of this disease, as it appeared at the Havannah in the summer of 1794, is given by Mr. Halliday, a resident practitioner there.

“The symptoms of the disorder were various, and in some, it terminated life in twenty-four hours from the first attack, and with others, it endured until the tenth day. The characteristic symptoms of the disease, as it shewed itself in this city, were as follows: The day preceding its attack, the patient commonly feels a heaviness, weariness, a general debility in the whole body, yawning, and want of appetite; the day following, or on the night of the first indisposition, the violence of the disorder begins thus: the patient will be found perplexed, uneasy, generally with slight pains in different parts of the body, particularly in the head, loins, &c. accompanied with a small chilliness in the extremities (although there were many who did not feel this), attributing this to a slight cold, until unexpectedly he is seized with a severe degree of fever, with a great heat all over the body, a flushing in the face, heaviness and redness in the eyes, and a longing after fresh air, the tongue white, and excessive thirst, interior pains of the head, &c. the pulse quick, full, and hard, at times feeble and irregular, a nausea, heaviness, and an uneasy sensation in the stomach, from the beginning, and the whole increasing with the disorder, particularly after taking something to quench the thirst; the anxiety and uneasiness then increased, with vomiting a great abundance of bilious matter, the skin hot and dry, intense heat, with pain in the region of the præcordia, the respiration difficult, and the urine high coloured and little in quantity; the symptoms continued twenty-four or forty-eight hours, and at times I have seen them endure till the third or fourth day, differing in some of the symptoms, together with the times of its duration, according to the age, constitution, or malignity with which it had increased: when in the midst of these complicated and violent symptoms, there was an apparent cessation, and total relief from them, a slight perturbation and inclination to sleep only remaining.

“From such favourable appearances, we prognosticated we had gained the desired crisis, and a total intermission of the disease; but, to the misfortune of the unhappy patient, at this time (by a minute examination) we observed on the white of his eyes a slight yellowish tinge, and successively on every other part of the body, accompanied with a perturbation of the intellectual functions, a glossy appearance of the eyes, the anxiousness and vomiting were augmented in such a manner, that they impeded the administration of nourishment or medicine: at this time, instead of experiencing that irresistible and burning heat which was before complained of, the patient feels chilly, and the cutis is alternately dry and moist, the pulse sinking, and very irregular, the urine of an high croceous appearance, and at times resembling liquid and corrupted blood, depositing, as I have often seen, a black and offensive sediment: the tongue is, in some, dry, parched, and discoloured; and in others, it is furred and moist. This stage of the disorder

lasted but a few hours in some, and in others, from twenty-four to forty-eight, but seldom longer; and it is in this second stage when the medicines have not produced the desired effects, the beginning of the disorder neglected or improperly treated, when we see the direful efforts made between life and death, the pulse diminishing, more irregular or intermittent, nothing can be kept on the stomach, the vomiting increases with repeated efforts, voiding a black corrupted matter, similar to the grounds of coffee, the tongue and edges of the lips black and sticking, cold clammy sweats; the universal yellowness, together with the aggravation of all the symptoms, are demonstrative of the near approach of death: a total suppression of the urine, *subfultus tendinum*, a death-like coldness of the extremities, tremblings, delirium, efforts of getting up from bed, a muttering voice, blood oozing from the mouth, nostrils, and many times from the corners of the eyes, ears, &c. black and foetid stools, livid spots on different parts of the body, particularly on the regions of the præcordia; hiccups, coma, and death."

2. *Causes of, and persons subject to, this disease.*] The yellow fever attacks principally Europeans, especially those who have but lately arrived in the hot climates. Negroes are entirely exempt from it, though the mulattoes and tawnies are as liable to be seized with it as the whites themselves. The cause of the disease seems to be a particular kind of contagion; but Dr. Lind seems to be of opinion, that the immediate cause of the symptoms is a disposition in the glutinous part of the blood to separate from the others, and to become purulent. In some persons who have been bled in the yellow fever, the blood hath been observed prodigiously viscid; the crassamentum covered with a yellow gluten half an inch in thickness, and impenetrable to the finger, unless cut by the nail; the serum being at the same time of the consistence of a thin syrup, and of a deep yellow tinge. This serum tasted bitter, and was taken for a composition of foot. The appearances on dissection, with his conclusions from them, we shall give in his own words: "In a man who died on the eleventh day of a yellow fever, whose body emitted no bad smell thirty-six hours after death, and was still yellow, I found all the bowels of the abdomen sound; the liver and spleen were remarkably so; as also the stomach and intestines. There was no suffusion of the bile either in the intestines or stomach. The gall-bladder, of the natural size, contained the usual quantity of bile, somewhat thicker than common, and grumous."

"Upon examining further, this disease was found to have lain wholly on the left side, where, within the breast, was found near a quart of yellowish water, in which were many large flakes of yellowish gluten, appearing, by comparison, precisely the same with the thick pellicle which had covered the blood taken from his arm. These flakes bore in several places a resemblance to a membranous substance beginning to be converted into a purulent jelly. The

pleura, both on its inside and outside, as also its continuation, the invelling membrane of the lungs (which in some parts was greatly thickened), were covered with cakes of this gluten, hanging in some places loosely, in others adhering more strongly : and all in different states of yellow or purulent corruption. The right cavity of the breast, and all the other parts of his body, were found entirely free from disease.

“ His complaints had been chiefly in his breast ; and a small quantity of blood taken from him two days before his death, was covered with an impenetrable, yellow, thick gluten ; the red portion below it being quite loose.

“ In those fevers, I have also seen the disease entirely confined to the heart and pericardium. In one who died the tenth day of the fever, without having been yellow, a quantity of pus and purulent crusts were found mixed with the water of the pericardium. The heart in different places was excoriated ; and, together with the inside of the pericardium, was lined with a thick membranous cake, similar to that already mentioned on the lungs and pleura. In some places this cake had a purulent, in others a gelatinous, appearance, exactly resembling the coagulum of the blood. His complaints had been, a great oppression on the breast, and an extreme difficulty of breathing. In a third person, who died on the thirteenth day of the fever, above two quarts of pus and purulent jelly were found in the cavity of the belly. The source of such an extraordinary quantity of matter was not from any preceding inflammation, nor any imposthume, that we could discover ; but from innumerable ulcerations on the surface of the intestines, omentum, mesentery, and peritoneum. Neither did those ulcerations (or excoriations, as they rather appeared in several places) seem to be the primary fountains of the matter, but to have been occasioned by its acrimony.

“ This purulent appearance seems to arise merely from an extravasation of one of the component parts of the blood, the gluten or coagulable lymph. Blood taken from persons in a fever, and frequently even from persons in perfect health, after standing in a clean vessel for a short time, commonly separates into three distinct portions : *viz.* the serum, or water of the blood, the red concreted mass, and a viscid pellicle termed the *size*, which spreads itself on the top of the red concretion. Some time ago, when making experiments with the blood taken from persons in the scurvy, I was surprised to find it often covered with that sily crust. This induced me to extend my experiments to large quantities of blood from different subjects, which I had opportunities of inspecting at once in so large an hospital. For this purpose I one morning ordered ten patients in the scurvy to be bled, taking two ounces from each. A larger quantity was taken, for its inspection, from two men in health. That day I had occasion to prescribe bleeding to a wo-

man in labour, two hours before her delivery ; to a girl of sixteen years of age, afflicted with a lunacy proceeding from the chlorosis ; to three patients in the rheumatism ; and to a person labouring under an obstruction of the liver.

“ From a nice comparison, and an examination of the different blood, I found, in general, that the more size there was on the top, and the thicker and more viscid this white pellicle showed itself, the concretion below it was of a more loose coherence. This was not so observable when only some slight white streaks appeared on the top. But when much size had separated itself, the red mass became very soft at the bottom of the vessel, and less compact in its different parts, in proportion to their distance from the surface, towards which this whitish portion had ascended.

“ From this and from other experiments it appears, that this crust or pellicle is the natural gluten or cement of the blood (called by some the *coagulable lymph*), which becomes strongly disposed, in certain circumstances and diseases, to separate itself. And whereas the serum and red concretion are easily incorporated together, it will be found, that this glue, after its separation, becomes immiscible with either. We have, by gentle drying, sometimes converted it into a perfectly tough elastic membrane ; and, by the means of a small portion of the red mass being left adhering to it, into a substance resembling muscular flesh ; and it is capable of undergoing various changes into corruption, in the same manner as either of these.

“ Now, I can see no reason why this gluten, in its morbid state, may not separate itself from the circulating blood, and be deposited in the cavities of the body, as readily as the serum does in dropsies ; the former having always a less disposition than the latter to incorporate with the mass.

“ In dissecting persons who died of fevers in London and Minorca, and where no infection was suspected, appearances similar to these have also fallen under the inspection of those accurate anatomists Drs. Hunter and Cleghorn. Hence it may be presumed very difficult to distinguish fevers that are produced by infection, from some others. I cannot, however, be induced to think, as those gentlemen seem to do, that these preternatural substances which were found in the cavities of the body are the consequence, but rather that they are the cause of the inflammation and excoriations. I believe these substances to be at first diseased extravasated gluten, and conjecture their different states greatly to depend upon the different times at which they were deposited.

“ I have remarked, in a variety of dead bodies, three different kinds of extravasation ; these occurred in such as had died of the scurvy, of consumption, and of fevers. In the former of those diseases, red coagulated blood is found extravasated in almost all parts of the body, not only into the tela cellulosa, but into the bellies

of the muscles, particularly of the legs and thighs, which often become quite stuffed and even distorted with large grumous masses. The intestines and mesentery are often spotted also with extravasated blood; and I have seen large ecchymoses on the stomach. Those appearances at first sight resembled so many distinct mortifications; and by this appearance some anatomists have been deceived; but upon a nice examination, the texture of the parts is found to be sound and firm. There is likewise, in that disease, sometimes, an extravasation of water chiefly collected in, and always when in the legs confined to, the tela cellulosa.

“ But whereas, in the limbs of scorbutic persons, it is extremely difficult to make a good dissection by reason of such quantities of extravasated blood that every-where obstruct the operator; so, on the contrary, the lower extremities of those who have died consumptive, with swelled legs, are, of all other subjects, in the best state to afford a satisfactory view of the muscles. The water inclosed in their legs having insinuated itself, by passing the tela cellulosa, into the spaces between the muscles, are easily separated from each other; and their several origins and insertions may be distinctly traced by means of their having been cleansed and washed by the water in the investing cellular membrane. Thus there are extravasations of three sorts; *viz.* first, the grumous mass in the scurvy; and this I have often remarked where no serum was observed. Secondly, the serum alone in anasarca swellings. The third and last is what was taken notice of in those who died of fevers, being the gluten of the blood, accompanied for the most part with some serum; both of them altogether confined in the large cavities of the body.

“ I conjecture, that in those fevers there is always an ulcerous or purulent disposition in the blood; and that this gluten or coagulable lymph is greatly diseased. I have frequently seen it have a true purulent appearance soon after it was drawn off, when the patient seemed not very ill.

“ And I further conjecture, that the mischief often lies within the breast; as also that the great benefit derived from the very early application of blisters, in a great measure, flows from so many ulcerations and vents being timely provided for the free discharge of those purulent and tainted particles from the body.

“ If an infection depends, as many have imagined, on the admission of certain foreign particles into the blood, this gluten seems to be its more immediate seat, and to be primarily affected by it; and a discharge of this, as though by washing those particles out of the body, tends in a great measure to remove the disease.

“ It is an observation of the best practical writers, that issues and setons are most excellent preservatives against receiving an infection, nay, even that of the plague itself. And indeed a suppu-

ration and plentiful discharge from a proper ulcer, whether produced by nature or by art, seems to open a channel the best appropriated for an exit out of the body to some of the most malignant poisons. Thus the most favourable crisis in the plague, and in most pestilential fevers, happens when nature excites tumors kindly suppurating in the groin or arm-pits."

We here protest against the *humoral* pathology: but the author proceeds,

"I have observed it to be among the most certain characteristics of the worst fevers, that the blisters either do not rise and fill, or discharge such yellow, greenish, fetid, and highly offensive stuff, that even experienced nurses could give a pretty certain conjecture from the blisters, of the different degrees of malignity in the fever. We have more than once endeavoured to conceal the bad state of some patients in the hospital; but a discovery was always made of their condition in the wash-house, from the linen sent there stained with the discharges from the blistered parts. And indeed a careful inspection of the state and discharge from the blisters, together with their effects, furnishes us, in those diseases, with some of the most certain diagnostics of their nature and prognostics of their event."

Dr. Rush of Philadelphia thus describes this fever, as it appeared in that city in 1793.

"There were for several weeks two sources of infection, viz. exhalation, and contagion. The exhalation infected at the distance of three and four hundred yards; while the contagion infected only across the streets. The more narrow the street, the more certainly the contagion infected. Few escaped it in alleys. After the 12th of September, the atmosphere of every street in the city was loaded with contagion; and there were few citizens, in apparent good health, who did not exhibit one or more of the following marks of its presence in their bodies. 1. A yellowness in the eyes, and a fallow colour upon the skin. 2. A preternatural quickness in the pulse. I found but two exceptions to this remark, out of a great number of persons whose pulses I examined. In one of them it discovered several preternatural intermissions in the course of a minute. This quickness of pulse occurred in the negroes, as well as in the white people. I met with it in a woman who had had the yellow fever in 1762. In two women, and in one man above seventy, the pulse beat upwards of ninety strokes in a minute. This preternatural state of the pulse during the prevalence of a pestilential fever in persons in health, is taken notice of by Riverius*. 3. Frequent and copious discharges by the skin of yellow sweats. In persons who were much exposed to the con-

* "Pulsus sanorum pulsibus similes admodum, periculosi."

De Febre Pestilenti, p. 114.

agion, these sweats sometimes have an offensive smell, resembling that of the washings of a gun. 4. A scanty discharge of high-coloured or turbid urine. 5. A deficiency of appetite, or a greater degree of it than was natural. 6. Costiveness. 7. Wakefulness. 8. Head-ach. 9. A preternatural dilatation of the pupils.—This was universal. I was much struck in observing the pupil in one of the eyes of a young man who called upon me for advice, to be of an oblong figure. Whether it was natural, or the effect of the contagion acting on his brain, I could not determine.

“It will be thought less strange, that the contagion should produce those changes in the systems of persons who resided constantly in the city, when I add, that many country people who spent but a few hours in the streets in the day, in attending the markets, caught the disease, and sickened and died after they returned home; and that others, whom business compelled to spend a day or two in the city during the prevalence of the fever, but who escaped an attack of it, declared that they were indisposed during the whole time with languor, or head-ach.”

After rejecting the general opinion that this disease could only be had once by the same person, Dr. Rush transcribes from a paper by Drs. Physick and Catherall the following account of the appearances after death.

These gentlemen state, “1st. That the brain in all its parts has been found in its natural condition. 2d. That the viscera of the thorax are perfectly sound. The blood, however, in the heart and veins is fluid, similar in its consistence to the blood of persons who have been hanged, or destroyed by electricity. 3. That the stomach, and beginning of the duodenum, are the parts that appear most diseased. In two persons who died of the disease on the 5th day, the villous membrane of the stomach, especially about its smaller end, was found highly inflamed; and this inflammation extended through the pylorus into the duodenum, some way.—The inflammation here was exactly similar to that induced into the stomach by acrid poisons, as by arsenic, which we have once had an opportunity of seeing in a person destroyed by it.

“The bile in the gall-bladder was quite of its natural colour, though very viscid.

“In another person who died on the eighth day of the disease, several spots of extravasation were discovered between the membranes, particularly about the smaller end of the stomach, the inflammation of which had considerably abated. Pus was seen in the beginning of the duodenum, and the villous membrane at this part was thickened.

“In two other persons who died at a more advanced period of the disease, the stomach appeared spotted in many places with extravasations, and the inflammation disappeared. It contained, as

did also the intestines, a black liquor, which had been vomited and purged before death. This black liquor appears clearly to be an altered secretion from the liver; for a fluid in all respects of the same qualities was found in the gall-bladder. This liquor was so acrid, that it induced considerable inflammation and swelling of the operator's hands, which remained some days. The viscid membrane of the intestines in these last two bodies was found inflamed in several places.

"The liver was of its natural appearance, excepting in one of the last persons, on the surface of which a very few distended veins were seen: all the other abdominal viscera were of a healthy appearance.

"The external surface of the stomach, as well as of the intestines, was quite free from inflammation; the veins distended with blood, which appeared through the transparent peritoneum, gave them a dark colour.

"The stomach of those who died early in the disease was always contracted; but in those who died at a more advanced period of it, where extravasations appeared, it was distended with air."

A violent difference of opinion having existed amongst the physicians in that quarter of the world, as to the method of treatment which ought to be pursued; and that appearing to Dr. Rush to have arisen from their having confounded the diagnostics of this, with those of other fevers, particularly the gaol, or hospital fever, he points out the following discriminating signs.

"The circumstances and symptoms in which the gaol fever *differs* from the yellow fever, are as follow: 1. It affects persons who have been previously weakened by other diseases, or who are of weakly habits. 2. The pulse is seldom full or tense, but generally weak and quick. 3. The tongue soon loses its whiteness and moisture, and assumes when dry a dark colour. 4. The stomach is seldom disordered. The bowels are either in their natural state, or a diarrhoea attends. The stools are seldom bilious, or preternaturally foetid. 5. There are great twitchings in the tendons, and tremors in the tongue and limbs. 6. Intermissions and remissions of the fever are seldom, or scarcely perceptible. 7. It prevails alike in the winter, spring, and autumn. It is moderated, or checked, by warm weather, provided patients are placed in situations in which they can breathe a sufficient quantity of fresh air. 8. It is less contagious and mortal than the yellow fever. 9. It is derived from human miasmata produced under inferior degrees of all those circumstances which favour the generation of the plague. It is to the plague, in its degree, what the common bilious is to the yellow fever.

"There is a camp fever described by some authors, which is

derived from a mixture of marsh and human miasmata. Its symptoms are compounded of those which belong to the bilious, and gaol fevers."

"I shall not attempt (continues Dr. Rush) to distinguish the yellow from the *common bilious* fever. They are only different grades of the same disease. The following appears to be the natural order of a scale of such fevers as are derived from marsh miasmata. 1. The yellow fever. 2. The common bilious remitting fever. 3. The common mild intermitting fever. 4. The febricula of authors, or what are called 'inward fevers' in the southern states. Different degrees of *force* in the remote cause, in conjunction with a difference in the qualities of the atmosphere, frequently produce all these grades of bilious or marsh fever in different seasons, and sometimes in the same season. The increase, or abstraction of accidental stimuli, likewise often change these different states of bilious fever into each other. Thus, what are called inward fevers have often been excited by means of a ride, or a long walk, into an intermittent; an intermittent has been changed by the premature use of the bark into a remitting fever, and a common remittent has, by improper regimen or violent exercise, been excited into a yellow fever. The danger in each case is determined by the force of the miasmata, and the state of the air."

Many of the circumstances here stated, will be found to agree with the description of this disease by Dr. Moseley, who introduces that part of his subject by observing, that, people from colder climates, North-Americans and Europeans, on their arrival in the West Indies, are subject to what is called a *seasoning*. This seasoning is understood to be the first illness they are attacked with; which, unless they live very temperately, or are in a proper habit of body, though some people are unmolested for many months, seldom suffers them to remain long before it makes its appearance, in some mode or other; particularly if, at first, they expose themselves in a shower of rain, or too long in the sun, or in the night-air; or when the body is much heated, if they drink large draughts of cold liquors, or bathe in cold water; or use much exercise; or commit excess in drinking wine or spirits; or by heating the body and inflaming the blood; or by subjecting themselves to any cause, that may suddenly check perspiration, which at first is generally excessive.

"Some people," Dr. Moseley observes, "from a favourable state of body, have *no seasoning*. Thin people, and very young people, are most likely to escape it. Women generally do from their temperance, and perhaps their menstruation contributes to their security; indeed hot climates are favourable to the delicacy of their habits, and suitable to their modes of life. Some escape by great regularity of living; some, by the breaking out of the

rash, called the *prickly heat*; some by a great degree of perspiration; and some by observing a cooling regimen.

“The disorders are various that constitute this seasoning of *new-comers*, as they are called; depending on age, constitution, and habit of body.

“But all seasoning diseases are of the inflammatory kind; and yield to antiphlogistic treatment proportioned to their violence.—In this general position, I do not include the derangement which may happen to habits, naturally, or from disease, at variance with hot climates.

“Subjects most likely to be attacked by the *Endemial Causus* (the yellow fever) are the florid, the gross, the plethoric;—that sort of strong, full, youthful people with tense fibres, who in England (to use a vulgarism) are said to resemble the picture of health. In short, so are all persons who are of an inflammatory diathesis, and do not perspire freely.”

The doctor considers it very natural that this fever should be called by the French *la Fièvre Mâclotte*, and that sailors, who eat, drink, and sleep so much at sea, and use no exercise, being always of a gross habit of body, should be attacked with it more than visitors of tropical climates of any other description. “The heat and dampness of harbours,” says he, “generally in the neighbourhood of marshes, and exposed to land winds at nights; the labour on board of vessels in port, lying still at anchor, in the scorching rays of the sun; and the carelessness and excesses committed by people of this class, when they are on shore, after long voyages, must always subject them to the worst evils climate can produce.

“When a new-comer is seized with a sudden loss of strength, and a desire of changing, for rest, into every position, without finding it in any, those symptoms which constitute the *Endemial Causus* may be expected. This is of great consequence to be understood, and to be well remembered.

“When a new-comer is taken ill in hot climates, an intermission is not to be waited for; disease must be stifled in its birth.

“Supposing a person, answering any of the preceding descriptions, just arrived in the West Indies, were to expose himself to the causes already mentioned, the probable consequences would be, that to-morrow he would perceive an heaviness, a lassitude, an oppression, and a loss of appetite. This is the time to extinguish the disease; but Europeans and North-Americans neglect it, as they are not accustomed at home to have recourse to medicine, on the first moment of indisposition.

“The following day, but sometimes within twelve hours from the first indisposition, the violence of the disease will commence thus:—

"There will be a faintness, and generally a giddiness of the head, with a small degree of chilliness and horror, but never a rigor*. Then immediately will succeed, an high degree of fever, with great heat, and strong beating in all the arteries of the body, particularly observable in the carotid and temporal arteries; flushings in the face, gasping for cool air, white tongue, but tinged with yellow, after the retchings have commenced; excessive thirst, redness, heaviness, and burning in the eyes; heaviness and darting pains in the head, and small of the back, and often down the thighs; pulse quick, generally full and strong; in some cases quick, low, and vacillating; skin hot and dry, sometimes with a partial and momentary moisture; sickness of the stomach, from the first, which increases with the disease, and immediately after any thing is taken to quench the thirst, retchings succeed, in which bilious matter is brought up; anxiety with stricture, foreness, and intense heat about the præcordia; great restlessness; heavy respiration; sighing; urine deep coloured, and but little in quantity. This is the first stage of the fever, and may continue twenty-four, thirty-six, forty-eight, or sixty hours, and this constitutes its inflammatory period.

"The *second stage* begins with an abatement of many of the preceding symptoms, and the rise of others; sometimes with a deceiving tranquillity, but with perturbation, if the patient should fall into a sleep; then a yellow tinge is observed in the eyes, neck, and breast; the heat subsides, and sometimes with a chilliness; but not with that sort of strong rigor† which, when it happens, terminates the disease by sweat, or by copious bilious evacuations, upwards or downwards. The retchings increase and turn poraceous; the pulse flags, but is sometimes high, and sometimes soft; the skin moist and clammy; urine in small quantity, and of a dark croceous colour; the tongue, in some cases, is dry, harsh, and discoloured; in others it is furred and moist; confusion in the head, and sometimes delirium; with the eyes glassy. This stage of the disease sometimes continues only for a few hours, sometimes for twelve, twenty-four, thirty-six, or forty-eight hours, but seldom longer.

"It is in the beginning of this second stage when attempts have failed, or have been neglected in the inflammatory stage, that the struggle is to be made between life and death.

"In the *third and last stage* of the fever, the pulse sinks and be-

* "Cum rigore non irruit.—Neque rigor exacerbationes præcedit."

ÆTIUS, Tetr. 2. Serm. 1. Cap. 77.

† "Ardente febre laboranti, superveniente rigore, solutio contingit."

HIPPOCRAT. Aphor. 58. Sect. 4.

"Febrem autem ardentem, quam Græci κενσώνη vocant, subitus horror exolvit."

CELSUS, Lib. II. Cap. 8.

comes unequal and intermittent, sometimes very quick; frequent vomiting; with great straining and noise in vomiting, and what is brought up now is more in quantity, and has the appearance of the grounds of coffee, or is of a slate colour; nothing can be retained in the stomach; difficult breathing; tongue black; cold clammy sweats; eyes yellow, and sunk; yellowness round the mouth and temples, and soon after over the whole body.

“ This universal yellowness growing deeper coloured, accompanied by an aggravation of all the other symptoms, is the immediate forerunner of death. Deep respiration; subsultus tendinum; a convulsive kind of sighing; black urine; sometimes total suppression of urine; death-like coldness of the hands, feet, and legs; heat still about the pit of the stomach; delirium, and struggling to get up in the bed; faltering speech; trembling; blood oozing from the mouth and nostrils; sometimes from the corners of the eyes, and from the ears; vomiting black bloody cruor; stools the same; livid spots about the body, particularly the præcordia; hiccup; muttering; coma;—death.

“ I have divided the disease into three stages, because, between the *inflammatory* and the *gangrenous state*, there is a distinct period of its *Metaptosis*; a composure preceding mortification, as is observed on all other occasions, which sometimes gives sufficient length of time to perform the cure; though sometimes it is of so short a duration, that the patient rushes immediately, as soon as the inflammatory state is passed, into the black vomiting. Sometimes, in this period of the disease, the symptoms are so mild, and the patient so tranquil, that the disease is supposed at an end; and all means are neglected, or thought unnecessary, until the storm appears which succeeds this fatal calm, arrayed in those dreadful forms I have enumerated, as characteristic of its third stage, and completes the catastrophe.

“ The preceding description corresponds with the general order and manner of the disease, when the patient dies from the third or fourth, to the seventh day. But many patients do not experience all the symptoms that I have mentioned, which vary according to habit of body; some inclining to characterize the *genuine*, and some the *spurious* causus, of the ancients. Some have no chilliness at first, nor faintness, nor flushings in the face, and the pulse is sometimes deeply depressed, and not quick; and there are gross habits of body which have been attacked in very sultry weather, in damp situations, where the inflammatory period has been only of a few hours' duration; the *Metaptosis* has been so rapid, that the black vomiting, and the mortified state, have unexpectedly appeared, and have ended the patient in twenty-four, thirty-six, or forty-eight hours. On the contrary, there are some instances where the disease has been protracted to the eighth, ninth, or tenth day; and

others where it has never passed from the inflammatory stage; but being checked, though not extinguished, it has been lengthened out, and at last converted into a remittent of great duration, of most difficult cure, and tedious recovery.

“During all the periods of the disease, great heat is perceived near the præcordia, and forenefs and uneasinefs complained of, on pressing the hand upon those regions. After death, livid spots appear over the whole body, particularly about the præcordia, which, as *Warren* justly remarks, ‘seem from the beginning to be the chief seat and throne of the furious conqueror.’

Dr. Moseley does not agree with Hillary as to the cause of this uniform and extreme suffering about the præcordia. He thinks it is not occasioned by the parts being situated near to the “seat of the liver and gall-bladder;” and that this fact is by no means proved, though “the gall-bladder and its ducts are always found turgid with poraceous, blackish, and putrescent bile;” but, on the contrary, that it arises principally from the particular state of the stomach; at first from its being charged with hot, corrosive, and acrid contents; at length from inflammation, and from the convulsive motion of incessant straining to vomit. “In short,” says Dr. Moseley, “this viscus seems to bear the chief burden of the disease, while life remains, and the principal internal vestiges of its effects after death.

“At the end of the disease,” continues he, “the stomach, in some part or other, is generally mortified, where the black vomiting has been protracted; and when livid spots have appeared on the body previous to death: for on inspecting many dead bodies, I have always found some part or other of the stomach, and frequently the superior part of the duodenum, in a gangrenous state, and never without evident marks of injury from inflammation, let the disease have been of ever so short a duration. It has been said, that gangrenous spots have been observed in the inferior parts of the curvatures of a very considerable portion of the intestinal canal, but this I have never seen.

“These appearances are universally produced by a mortal yellow fever; but from the appearance of the liver, and gall-bladder, though both must be materially affected in this disease, there is no inference to be drawn that can be depended on: though the cause of the disease assigned by *GALEN*, certainly favours a different conclusion*. Indeed *GALEN* himself, speaking of particular symptoms, supposes the *Causus* sometimes may have its seat in the stomach, or liver, nay even in the lungs†.”

* “Oritur ex bile non nimis sicca, circa venas quæ ad jecur sunt.” *Introductio seu Medicus*, Cap. 13.

† Propterea hæc, in *ventre* ac *hepate* causi veluti sedem habentibus, accidunt. Verum in *pulmone* causi sedem habentibus, hæc non admodum contingunt, &c. *Com. 4. Art. 4. In Lib. Hipp. de Acut. Morb. Victu.*

“ In the course of the disease, though there are some symptoms common to inflammations of the liver, yet there are more to inflammations of the stomach; and none of the invariable symptoms which distinguish inflammations of the liver from all other diseases.

“ There is no heavy fixed pain in the right hypochondrium, with inflation and tension, and hiccup, as when the concave part of the liver is inflamed; there is no evident and painful enlargement of the side, with acute pain in breathing, extending up to the neck, or top of the right shoulder, and dry cough, as when the convex part of the liver is inflamed.

“ This fever never terminates in suppuration of the liver, as in the *Hepatitis*; though it must be confessed it often does in an enormous excretion of bile.

“ Dissections have never discovered any certain and uniform appearance in the liver, of those who have died of this disease.—In hot climates a sound state of the liver is never to be expected, after death, whether the disease has been acute or chronical.—Of the latter class of diseases, it is almost always either the seat, or the origin.”

3. *Prognosis.*] This distemper, where it attacks with violence, is generally fatal: the prognosis therefore must be commonly unfavourable, and always uncertain; neither can any thing more be said on this subject, than that an abatement of the symptoms already enumerated affords a favourable prognostic, and an increase of them the contrary.

4. *Cure.*] In speaking of the means to be used in the preventing, and cure, of the yellow fever, we shall follow the different authors from whom we have already quoted. Though so terrible in its nature, the once greatly celebrated Dr. Hillary represents the cure of this disease as very easy and simple. His indications are, 1. To moderate the too great and rapid motion of the fluids, and abate the too great heat and violence of the fever, in the two first days of the disease, as much and as safely as we can. 2. To evacuate and carry out of the body as much of the putrid bile and other humours, and as expeditiously and safely as possible. 3. To put a stop to the putrescent disposition of the fluids, and to prevent the gangrenes from coming on, by suitable antiseptics.

The first indication is answered by bleeding, which, in the first stage of this fever, is absolutely necessary in some degree: the quantity to be taken away must be nicely determined by the age and strength of the patients, the degree of plethora, fulness of the pulse, &c. When called in at the beginning, he orders twelve, fourteen, sixteen, eighteen, or twenty ounces of blood to be taken away on the first or second day; and if the patient's pulse rise after the first bleeding, or if the fever still continue high and the pulse full, he repeats the bleeding on the days above mentioned.

But bleeding a third time is seldom or never required: neither is bleeding on the third day almost ever necessary; when it is performed on that day, it ought to be done with the greatest caution and judgment; neither should a vein be opened after the third day in this fever, unless some very extraordinary symptoms and circumstances require it, which seldom or never happen. On that day, indeed, the pulse generally sinks, and the blood is in such a dissolved state, that bleeding must be accounted highly pernicious. Nevertheless, it is indispensably necessary in the beginning of the disease; and if omitted at that time, the violent heat and motion of the blood increase the putrescence of the humours to such a degree as to bring on the fatal consequences much sooner than would otherwise have happened.

After bleeding, we come to the second indication of cure, namely, to evacuate as much of the bilious and putrid humours as soon and as safely as we can. The irritable state of the stomach, from the putrid bilious humours constantly attending this fever, with almost continual retchings, and violent vomitings, seem to indicate the giving of an emetic: but the stomach is always observed to be so violently stimulated and irritated, and most commonly inflamed by the acrimony of the putrescent bile, that any emetic, even the most mild and gentle, given in the smallest dose, brings on an incessant vomiting, which continues, in spite of all remedies, till a mortification and death ensue. Instead of this, it is proper to give large draughts of warm water, which, without any additional stimulus to the coats of the stomach, evacuates its acrid and putrid contents, commonly with great relief to the patient; the warm water also acts as an emollient fatus to the inflamed coats of the stomach; and thus abates the inflammation, and prevents the gangrene and mortification from coming on.

After the patient has by this means vomited seven or eight times or oftener, and discharged a great quantity of yellow and blackish bilious matter, as they often do, a grain, or a grain and a half, of crude opium is given, in order to procure some respite from the violent retching, vomiting, and anxiety. The person is desired to take nothing into his stomach for two hours after this, by which means it is seldom or never rejected; and thus all the symptoms are considerably abated, the retching and vomiting either totally cease or are very much lessened, so that medicines may now be exhibited which the stomach would not have retained before. These are cooling acid juleps, or other antiseptic remedies; but neither nitre nor any of its preparations will commonly be found to stay on the stomach; nor are the nitrous medicines, or even the common anti-emetic draughts, of any great service in this disease, even though they should agree with the stomach, on account of their attenuating property.

If the patient has not a stool or two after drinking the warm water and vomiting, it is necessary to give the purging clyster (No. 34.); and when six or eight hours' rest have been obtained, a gentle antiphlogistic and antiseptic purge, in order to evacuate by stool as much of the bilious matter as we possibly can. Or if the patient has a purging before, which sometimes though very rarely happens, a dose of toasted rhubarb is given, and an antiseptic anodyne after it has operated, to abate and check the too great purging, but not to stop it, as this evacuation has been always observed to be of service, provided it be not too violent.

After this indication is completely answered, the next is to exhibit such proper antiseptic medicines as may stop the putrescent disposition of the fluids. Here the Peruvian bark would seem to be the most proper remedy; but unluckily the stomachs of the patients in this disease are so much irritated, and so apt to reject every thing, that the bark cannot be retained in any form whatever. In this case Dr. Percival recommends columbo-root, the infusion of which is found to be a powerful anti-emetic and anti-putrescent medicine, and might perhaps so far alter the state of the stomach as to make it bear the bark. Dr. Hillary, however, who was ignorant of the virtues of columbo, substituted the *radix serpentariæ Virginianæ* with success. A slight infusion of this root not only sat easily on the stomach of the patient, but moderately raised the pulse and fever, both of which are now too low. The following receipt was found the most agreeable and efficacious:

(No. 53). ℞ Rad. serpent. Virginian. ℥ii.

Croc. Ang. ʒss.

M. et infunde vase clauso in aq. bullien. q. s. per horam unam ut col. ʒvi. Adde

Aq. menth. fativ. ʒii.

Vin. Maderiens. ʒiv.

Syr. croc. vel syr. e mecon. ʒj.

Viuriol. acid. dilut. q. s. ad grat. acidior. sapor.

Exhibe cochlearia duo vel tria singulis horis vel bihoris, vel sæpius pro re nata.

By the use of this medicine, and soft light nourishment taken in small quantities, the pulse is usually kept up, and the disease goes off. But if, after taking this a little while, we find that the pulse does not rise, but on the contrary that a coldness of the extreme parts comes on, the medicines must be made more warming, by increasing the quantity of the snake-root, and saffron, or by adding *tinct. aromat. confectio cardiaca*, or the like, but not by the use of volatile spirits and salts, which hurt by their stimulating and dissolving qualities. Blisters, our author reprobates in the strongest terms, and affirms that he has seen the place where a blister was applied turned perfectly black and sphacelated; so

that, if the spine and ends of the ribs had not hindered, a large square passage would have been opened into the cavity of the thorax, had the patient lived a few hours after it.

At the same time that the strength of the patient was kept up by the medicines above mentioned, or by others similar, he gave repeated gentle purgatives every second or third day, and sometimes, when the symptoms were very urgent, every day, for four or five days successively. But if proper methods be taken in the beginning of the disease, it is seldom that such a repetition of purging is necessary; and the doctor gives the following remarkable instance of the efficacy of this method of treating the disease: "A young man about twenty-four years of age, surgeon to a Guinea ship, was brought into a house where I was visiting a patient. He was of a sanguine robust constitution, and a lover of spirituous liquors, and had been drunk three days and three nights successively, and in that condition had run several races on the hot sea-shore, near noon, with the sailors, in the heat of the sun; and to complete his folly, lay the last night, after that exercise, in the open air under a tamarind-tree all the night, where he was seized in the morning with all the symptoms of this fever, in the most violent manner that I have ever seen any one. In this condition he was brought to the house where I was: his retching and vomiting were so incessant, that he could not get time to say yes, or no, to the questions which I asked, without waiting some time for it, each time; his eyes were red and inflamed, attended with a burning heat, as usual in the beginning of this fever; and he had all the other symptoms which attended the first attack of this fever in the most violent manner, which I need not repeat. I ordered \mathfrak{z} xvi. of blood to be taken from him, which was very florid, thin, and much dissolved; and then directed him to drink warm water freely and to vomit eight or ten times; and after that to take *extract. Thebaic.* gr. jfs. and take nothing for two hours after it. But I being gone, and he finding that he vomited with more ease, less sickness and retching, with the warm water, than he did before, and being much alarmed at his having this fever, he drank three gallons of the water, and brought up great quantities of yellow and blackish bilious matter with it, and washed his stomach effectually. He then took opium, and slept three or four hours after it; and the vomiting ceased: he took some panada, and four hours after that the purge of manna and tamarinds, &c. which gave him eight stools, and carried a good deal more of the putrid bilious matter off downwards; and got some rest after it: he then took of an antiseptic julep often, and light nourishment, a little acid, at the intervals; and repeated the purge on the third day, as directed. Being called out of the town, I did not see him till I found him free from the fever and all its symptoms, on the fourth morning after; he said he had followed my directions;

was weak and low, and his skin a little yellow, but much less so than usual, unless when the bilious matter is thus carried off. I ordered him to take *vitrioli acid. dilut. gut. lx.* three or four times a-day for a few days, in an infusion of mint-leaves with a little snake-root, made as tea; which he did, and recovered perfectly well in seven or eight days' time.

“ This patient being seized in so violent a manner, and recovering in so short a time, and so near to the rule which the elegant Celsus recommends, *Cito, tutè, et jucundè*, not only confirmed the above manner of reasoning on the cause and nature of this disease to be right, but made me determine to follow the same method as I possibly could ever since, and I must add, with the same good success also, when I am called so early in the disease that I can strictly pursue it, which is too seldom the case; for in general the physician is not called till the fourth or fifth day, or later, when the putrid acrid bilious matter is a great part of it carried into the blood, which it has so dissolved and brought its whole mass into a colliquated, putrid, gangrenescent state, that the best of methods, and the most efficacious medicines, however judiciously timed and applied, are precarious and uncertain; or sometimes it is so far advanced, that the ablest physician can do no more than tell the relations of the sick that it is too late, and that they can live but a few hours: for I know no disease in which the recovery of the patient so much depends upon the right or wrong method of treating it, at the very first attack or beginning of the disease, as this fever does; for by thus discharging and carrying the putrid, aerimonious, bilious matter, out of the body before much of it is carried into the blood, not only most of the bad symptoms which attend the second state of the fever are prevented from coming on, but the hæmorrhagies, and the yellowness of the skin, &c. also, and the fever, soon subside too; for I have never seen any hæmorrhagy come on, and but little yellowness, or in some none, when they were thus treated.

“ And when the last stage of this fever is come on before we are called in, provided that it is not at the very latter end of it, I have always found that this method of gentle purging, whenever the before-mentioned symptoms indicate it, and a liberal use of the antiseptic medicines in the intervals, has been so successful, that I have seen but two patients that have died in this fever during the eight years past in which I treated it in this manner;—and one of them was so weak that he could not take a spoonful of any thing, and so near his end that he died about two hours after without taking any medicine; and the other killed himself by drinking a gallon of water in less than three hours' time (after taking half an ounce of manna in the morning), which struck such a coldness into his whole body that he died;—though I have visited several every year, and in some years a great many: therefore I take the

liberty of recommending this method to others, and wish it to be as successful to all."

To the genus of *typhus* also belong all those fevers attended with very profuse and debilitating sweats, and which have sometimes, not without good reason, been accounted plagues: such as the English sweating-sickness, Miliaris sudatoria, *Sauv.* sp. 5. Ephemera sudatoria, *Sauv.* sp. 7. Ephemera Britannica, *Caius de ephem. Britan.*

The great experience and high reputation of the author we have quoted, justify us sufficiently in what we have stated above; but it is now necessary to exhibit the opinions and practice of later writers, particularly Dr. Rush of Philadelphia, who, after having lost, in 1793, a multitude of patients affected with the yellow fever, under the established treatment, at last hit upon the mode of cure by *calomel purges and bleeding*; by which most of his subsequent patients were cured.

The hint was derived from a manuscript account of the yellow fever which appeared in Virginia in 1741, given to the author by Dr. Franklin.

"In reading the history of the method of cure (says Dr. Rush), I was much struck with the following passages.

"It must be remarked that this evacuation (meaning by purges) is more necessary in this, than in most other fevers. The abdominal viscera are the parts principally affected in this disease, but by this timely evacuation, their feculent corruptible contents are discharged, before they corrupt and produce any ill effects, and their various emunctories and fecerning vessels are set open, so as to allow a free discharge of their contents, and consequently a security to the parts themselves, during the course of the disease. By this evacuation the very minera of the disease, proceeding from the putrid miasma fermenting with the salivary, bilious, and other inquiline humours of the body, is sometimes eradicated by timely emptying the abdominal viscera on which it first fixes, after which a gentle sweat does as it were nip it in its bud. Where the primæ viæ, but especially the stomach, is loaded with an offensive matter, or contracted, and convulsed with the irritation of its stimulus, there is no procuring a laudable sweat, till that is removed; after which a necessary quantity of sweat breaks out *of its own accord*, these parts promoting it when, by an absterging medicine, they are eased of the burden or stimulus which oppresses them."

"All these acute putrid fevers ever require some evacuation to bring them to a perfect crisis and solution, and that even by stools, which must be promoted by art, where Nature does not do the business herself. On this account, an *ill-timed scrupulousness about the weakness of the body* is of bad consequence in these urging circumstances; for it is that which seems chiefly to make evacu-

ations necessary, which nature ever attempts, after the humours are fit to be expelled, but is not able to accomplish for the most part in this disease; and I can affirm, that I have given a purge in this case, when *the pulse has been so low that it could hardly be felt*, and the *debility extreme*, yet *both one and the other have been restored by it.*"

"This evacuation must be procured by *lenitive chologogue purges.*"

Dr. Rush having duly weighed these remarks, resolved on the following:

(No. 54.) ℞ Calomel. gran. x.

Pulv. Rad. Jallap. gran. xv. M. f. Pulv. purg.

This was administered in the first instance, and repeated every six hours till four or five large evacuations were produced. Some practitioners who had before employed calomel had done no good with it; because they had given it "in *small and single doses* only; and had followed it by large doses of bark, wine, and opium." The practice becoming general, Dr. Rush accompanied the powders with the following instructions:

"As soon as you are affected (whether by *night* or *day*) with a pain in the head or back, sickness at stomach, chills or fever; more especially, if those symptoms be accompanied by a redness or faint yellowness in the eyes; take one of the powders in a little sugar and water, every six hours, until they produce four or five *large* evacuations from the bowels;—drink plentifully of water-gruel, or barley-water, or chicken-water, or any other mild drink that is agreeable, to assist the operation of the physic. It will be proper to lie in bed while the medicine is operating; by which means a plentiful sweat will be more easily brought on. After the bowels are *thoroughly* cleansed, if the pulse be *full* or *tense*, eight or ten ounces of blood should be taken from the arm, and *more*, if the tension or fulness of the pulse should continue. Balm tea, toast and water, lemonade, tamarind-water, weak camomile tea, or barley-water, should be drank during this state of the disorder; and the bowels should be kept constantly open, either by another powder, or by small doses of cremor tartar, or cooling salts, or by common opening clysters: but if the pulse should become *weak* and *low* after the bowels are cleansed, infusions of camomile and snake-root in water, elixir of vitriol, and laudanum; also wine and water, or wine, punch, or porter, should be given, and the bark, either in infusion in water, or in substance, may be administered in the intermission of the fever. Blisters may likewise be applied to the sides, neck, or head, in this state of the disorder, and the lower limbs may be wrapped up in flannels wetted in hot vinegar or water. The food should consist of gruel, sago, panada, tapioca, tea, coffee, weak chocolate, wine whey, chicken broth, and the white meats, according to the weak or active state of the system. The fruits of the season may be

eaten with advantage at all times. Fresh air should be admitted into the room in all cases, and *cool* air when the pulse is full and tense. The floor should be sprinkled now and then with vinegar, and the discharges from the body be removed as speedily as possible."

"The best preventives of the disorder, are a temperate diet, consisting chiefly of vegetables, great moderation in the exercises of body and mind, warm clothing, cleanliness, and a gently open state of the bowels."

Respecting *blood-letting* in this disease, Dr. Rush makes the following important remarks:

"I shall now mention (says he) some of the circumstances which directed and regulated the use of this remedy.

"1. Where bleeding had been omitted for three days, in acute cases, it was seldom useful. Where purging had been used, it was sometimes successful. I recovered two patients who had taken the mercurial purges, whom I bled for the first time on the 7th day. One of them was the daughter of Mr. James Cresson; the other was a journeyman ship-carpenter at Kensington. In those cases where bleeding had been used on the first day, it was both safe and useful to repeat it every day afterwards, during the continuance of the fever.

"2. I preferred bleeding in the exacerbation of the fever. The remedy here was applied when the disease was in its greatest force. A single paroxysm was like a sudden squall of the system, and unless abated by bleeding, or purging, produced universal disorganization. I preferred the former to the latter remedy, in cases of great danger, because it was more speedy, and more certain in its operation.

"3. I bled in several instances in the remission of the fever, where the pulse was tense or chorded, more especially if the patient were unable to sit up without fainting. The bleeding in these cases lessened the violence of the succeeding paroxysm.

"4. I bled in all those cases in which the pulse was preternaturally slow, provided it was tense. Mr. Benj. W. Morris, Mr. Thomas Wharton, jun. and Mr. Wm. Sanfon, all owe their lives probably to their having been bled in the above state of the pulse. I was led to use bleeding in this state of the pulse, not only by the theory of the disease which I had adopted, but by the success which had often attended this remedy, in a slow and depressed state of the pulse in apoplexy and pneumony. I had, moreover, the authority of Dr. Moseley in its favour, in the yellow fever, and of Dr. Sydenham, in his account of a new fever, which appeared in the year 1685. The words of the latter physician are so apposite to the cases which have been mentioned, that I hope I shall be excused for inserting them in this place.

"All the symptoms of weakness (says our author) proceed from

nature's being in a manner oppressed, and overcome by the first attack of the disease, so as not to be able to raise regular symptoms adequate to the violence of the fever. I remember to have met with a remarkable instance of this several years ago, in a young man I then attended; for though he seemed in a manner expiring, yet the outward parts felt so cool, that I could not persuade the attendants he had a fever, which could not disengage, and shew itself clearly, because the vessels were so full as to obstruct the motion of the blood. However, I said that they would soon find the fever rise high enough upon bleeding him. Accordingly after taking away a large quantity of blood, as violent a fever appeared as ever I met with, and did not go off till bleeding had been used three or four times.'

" 5. I bled in those cases in which the fever appeared in a tertian form, provided the pulse was full and tense. I well recollect the surprise with which Mr. Van Berkel heard this prescription from me, at a time when he was able to walk and ride out on the intermediate days of a tertian fever. The event which followed this prescription, shewed that it was not disproportioned to the violence of his disease, for it soon put on such acute and inflammatory symptoms as to require six subsequent bleedings to subdue it.

" 6. I bled in those cases where patients were able to walk about, provided the pulse was the same as had been mentioned under the 4th head. I was determined as to the propriety of bleeding in these two supposed mild forms of the fever, by having observed each of them when left to themselves frequently to terminate in death.

" 7. I paid no regard to the dissolved state of the blood, when it appeared on the first or second day of the disorder, but repeated the bleedings afterwards in every case, where the pulse continued to indicate it. It was common to see fizy blood to succeed that which was dissolved. This occurred in Mr. Josiah Coats, and Mr. Samuel Powel. Had I believed that this dissolved state of the blood arose from its putrefaction, I should have laid aside my lancet as soon as I saw it, but I had long ago parted with all idea of putrefaction in bilious fevers. The refutation of this doctrine, was the object of one of my papers in the Medical Society of Edinburgh, in the year 1767. The dissolved appearance of the blood, I supposed to be the effect of a certain action of the blood vessels upon it. It occurs in fevers in which no putrid or foreign matter has been introduced into the system. The typhoid pneumonia described by Dr. Husham in his epidemics, and well known in the southern states of America, in the spring of the year, has never been ascribed to any other remote cause, than the sensible qualities of the air, and yet the blood is generally dissolved in this disorder.

“ 8. The presence of petechiæ did not deter me from repeating blood-letting, where the pulse retained its fulness or tension. I prescribed it with success in the case of Dr. Mease, and of Mrs. Gibler, in Dock-street, in each of whom petechiæ had appeared. Bleeding was equally effectual in the case of the Rev. Mr. Keating, at a time when his arms were spotted with that species of eruption which I have compared to Moschetto bites; I had precedents in Dr. De Haen*, and Dr. Sydenham†, in favour of this practice. So far from viewing these eruptions as signs of putrefaction, I considered them as marks of the highest possible inflammatory diathesis. They disappeared in each of the above cases after bleeding.

“ 9. In determining the quantity of blood to be drawn, I was governed by the state of the pulse, and by the temperature of the weather. In the beginning of September, I found one or two moderate bleedings sufficient to subdue the fever; but in proportion as the system arose by the diminution of the stimulus of heat, and the fever put on more *visible* signs of inflammatory diathesis, more frequent bleedings became necessary. I bled many patients twice; and a few three times a-day. I preferred frequent and small to large bleedings in the beginning of September; but towards the height and close of the epidemic, I saw no inconvenience from the loss of a pint, and even twenty ounces of blood at a time. I drew from many persons seventy and eighty ounces of it in five days; and from a few, a much larger quantity. Mr. Gribble, cedar-cooper, in Front-street, lost by ten bleedings, an hundred ounces of blood; Mr. George, a carter in North-street, lost about the same quantity by five bleedings; and Mr. Peter Mierken, one hundred and fourteen ounces in five days. Mr. Toy, blacksmith near Dock-street, was eight times bled in the course of seven days. The quantity taken from him was about an hundred ounces. The blood in all these cases was dense, and in the last very fizy. They were all attended in the month of October, and chiefly by my pupil Mr. Fisher; and they are all this day living and healthy instances of the efficacy of copious blood-letting, and of the intrepidity and judgment of their young physician. Children, and even old people, bore the loss of much more blood in this fever, than in common inflammatory fevers. I took above thirty ounces, in five bleedings, from a daughter of Mr. Robert Bridges, who was then in the ninth year of her age. Even great debility, whether natural or brought on by previous diseases, did not, in those few cases in which it yielded to the fever, deprive it of the uniformity of its inflammatory character.”

We shall pursue this part of our subject with the following

* *Ratio medendi*, vol. ii. p. 162. vol. iv. p. 172.

† Vol. i. p. 210, and 2644.

practical remarks from Mr. Halliday ; who, though he approves of purgatives, differs greatly from Dr. Rush on the subject of bleeding.

“ I am every day more surpris'd (says he), when I see medical men order bleeding in such quantities, *usque animi deliquium*; and having seen such fatal consequences arising from it, I am obliged to say, and really to believe, that those gentlemen who used it in such disorders to so great an excess, have either not met with that tendency in the fluids to a dissolution and putrid state which here made itself apparent, or that they had but little practice, or paid but little attention to the different symptoms and termination of the disease. Having already explained the fatal consequences arising from bleeding, experienced from my own practice, and the innumerable ones I had the opportunity of seeing under the care of others, it is my opinion, that whoever has been so fortunate as to escape from this dreadful disease, by the use, or rather the abuse, of blood-letting, it arose from his entire vigour and robust habit of body; or the little tendency of the fluids to dissolution and putrefaction: and all those that have survived this method of cure, have been under a state of convalescence for two, three, or four months, and frequently the disorder terminated in remittents, or intermittents of the most difficult cure.

“ In no stage of this disorder can emetics or antimonials be administered, owing to the irritable state of the stomach, and its propensity to vomit, that when once stirred up (that terrible and direful symptom), it is almost out of the power of medicine to moderate it, or even to admit the purgatives so necessary, and the only medicines which, from experience, have been proved to be the principal part of the cure. Any person that has come into these hot climates, and who has exposed himself to either of the causes which produce this fever, has sufficient warning, if he would attend to it, and sufficient time to cure it by anticipation; because, as soon as the patient feels any extraordinary heaviness in the body, with weariness, a stretching and yawning, and particularly when followed by a severe attack of the fever, intense pains of the head, &c. he then has very sufficient reasons for being certified that it is the beginning of the disorder, which is coming on with all the violent and customary symptoms: this is the time that the faculty ought to cut off the arms of the enemy, not by bleeding (as a greater part of the profession order), but with active and continual purges, until an entire cessation, or total ease, is obtained from all the symptoms. When one of the faculty is certified of this opinion, either by the disorder being prevalent, or by the symptoms which characterise it, without more delay or loss of time, he should administer the following medicine in three parts, with the interval of two hours between each, and the suitable nourishment between one and the other.

No. 55.) ℞ Magnesæ vitriolatæ ʒj.
 Mannæ ʒiij.
 Decoct. fruct. Tamarind. lbj.

Fiat solutio.

“ This medicine is administered with intention of effecting an immediate and plentiful evacuation, with the greatest facility, and without the irritation the drastic purges usually cause; for which reason, I have generally adopted this method, not only in the beginning of the disease, but also in different cases, when it reached the terrible stage of the black vomiting; and always with equal success, constantly procuring a total alleviation and entire intermission of all the symptoms: continuing the use of the medicine, according to the age, strength, and violence of the disorder. There having occurred different cases, in which, through the violence of the disorder, a difficulty in some to evacuate, and an urgency of the vomitings, I have been obliged to repeat the said quantity twice or three times in twenty-four hours, observing the same regimen until it effected the desired purpose, which it generally did in twenty-four or forty-eight hours, and in very obstinate cases, on the third or fourth day. In these violent cases, when on the first dose of the said medicine an evacuation did not ensue so copiously as was desired, it was then assisted with the common purging clysters, or rather better with the mixture of salt water and oil of olives, which, by the irritation that it created in the *intestinum rectum*, rarely or never failed of producing the desired effect. The fortunate remission or crisis of the fever being already accomplished, the irritation must in its turn be attended to, as much for whatever it brings along with it, as for the purging medicines so often repeated, though administered with the aforesaid precautions. I ordered what follows:

(No. 56.) ℞ Decoct. cinchonæ (fruct. tamarind. præp.) lbj.
 Niiri purif. ʒiss. ad ʒij.
 Pulv. e Chel. ʒij.
 Syr. violar. ʒj. Misce.

“ I repeated it twice, thrice, and four times (dividing the said dose into three parts, allowing an intermediate space of three hours between each), until I found the pulse soft, easy, and regular, which it will attain on the second or third day. Finally, to complete the cure, to restore and recover the stomach and other viscera from their state of relaxation, and at the same time to evacuate easily the remainder of the disorder, I used the following:

(No. 57.) ℞ Cinchonæ in pulv. trit. ʒij.
 Rad. Serpent. Virg. ʒss.
 Coque in Aquæ fontis lbj. ad lbiss.
 Cola et adde,
 Extracti cinchonæ ʒij.
 Tinct. Rhabarb. ʒij. Misce.

"I ordered that the quantity of two or three ounces might be taken every second or third hour, continuing this, or any other preparation of the Peruvian bark, until the patient is found entirely re-established and free from every incumbrance, which rarely exceeds the sixth, eighth, or tenth day from the first attack. When the symptoms were violent, and apparently about to terminate fatally, after a plentiful evacuation, or on the first remission, I administered the febrifuge mixture of the Peruvian bark, &c. in a great quantity, and always fortunately, not having failed in one of my endeavours after I put in practice these simple, though powerful medicines.

"During the time this disorder lasted in Vera Cruz, copies of these recipes were carried thither; and, I have the satisfaction to add, were used with the greatest success in every case to which they were applied."

Confiding in the truth of Mr. Halliday's representations of the degree of success which has attended these means, we have thought it right to give them thus at large; notwithstanding the objections which might be brought against the rationale of his prescriptions. The following plan of treatment is recommended by Dr. Moseley:

"It is unnecessary" says the doctor in his treatise on tropical diseases, "to fill many pages with a long catalogue of prescriptions and medicines, in the treatment of this fever, for it is comprised in a few words, and almost as few medicines; and requires only care and attention that those moments do not slip away, that the occasion is for ever lost, when

<i>Bleeding,</i>	<i>Baths,</i>	<i>Blisters, and</i>
<i>Purging,</i>	<i>Diaphoretics,</i>	<i>Bark,</i>

ought to have been timely used, for the salvation of the patient's life; and that afterwards they are not untimely employed for its destruction.

"If a person newly arrived in the West Indies has subjected himself to any of the causes which may produce this fever, previous to its attack, he has sufficient warning given him, if he will attend to it, and time enough in general to cure it by anticipation. For as soon as any heaviness, or lassitude, or restlessness, or stretching and yawning; is perceived, he has reason to expect that they are the harbingers of this tragedy; and he should immediately be bled, and take a dose of salts, and dilute plentifully, and keep himself quiet and cool: and after the operation of the salts, he should take small doses of *James's Powder*, live low, and drink barley-water. After the body is well evacuated, and cooled, it is always prudent to take bark,

"In the first stage of the fever, when it has made a regular attack, when these precautions have not been used, or when they have failed, and the patient is no longer able to abstain from his

bed, he should be kept in a large room, as cool as possible, covered lightly with bed-clothes, with a circulation of air admitted into the room, but not directly upon, or near the bed; and this must be observed throughout the whole of the disease.—‘*Amplio conclavi tenendus, quo multum et purum aërem trahere possit; neque multis vestimentis strangulandus, sed admodum levibus tantum velandus est**.’—‘*Et per flabellum aër ignavior concitetur*†.’

“Bleeding must then be performed, and must be repeated every six or eight hours, or whenever the exacerbations come on, while the heat, fulness of pulse, and pains, continue: and if these symptoms be violent and obstinate, and do not abate during the first thirty-six or forty-eight hours of the fever, bleeding should be executed, *usque ad animi deliquium*.”

Dr. Moseley has observed, that the blood taken away in the beginning of the yellow fever, is very florid, and of the arterial blood colour; and that the surface is never fizy, and seldom even contracted, as is usually the case when we bleed in inflammatory diseases.

“The intention of bleeding,” continues he, “can be answered only by performing it *immediately*, and in the *most extensive manner*; which the high state of inflammation, and the rapid progress of the disease, demand. Taking away only six or eight ounces of blood, because the patient may be faint, which is a symptom of the disease, is doing nothing towards the cure.—It is like ERASISTRATUS, giving *three drops of wine* to a patient; justly ridiculed by CELSUS. Where bleeding is improper, no blood should be taken away;—where it is proper, that quantity cannot relieve;—and it is losing time which can never be regained.

“Some practitioners who have not been witnesses of the good effects of bleeding, from never having taken away a sufficient quantity of blood, imagine that bleeding is not among the remedies for this disease. But this disease truly is not among those that yield to the loss of a few ounces of blood: for as BOTALLUS observes of the pleurisy, peripneumony, and *Causus*, “*Num huic satis fuerit missio sanguinis unciarum decem aut duodecim? non certe, sed librarum vel duarum vel etiam trium*‡.”

“Bleeding, it is evident, must not be performed in any other stage of the disease, than the first, or inflammatory stage; but this has been injudiciously done, which has given rise to the notion, that a patient will seldom bear more than two bleedings.

“Many practitioners have been deterred from bleeding their patients, from the depression of the pulse, and from the faintness which sometimes accompany the very first onset of this fever; but here

* Celsus, *Curatio Ardentis Febris*, Lib. III. Cap. 7.

† Ætius, *Tetr. 2. Sermon. 1. Cap. 78*.

‡ *De Curatione per Sanguinis Missionem*

the pulse always rises, and the faintness disappears, as the heart is relieved from its oppression, by the loss of blood.

"Faintness, and depression of the pulse here, are not to be considered like those circumstances, where putrefaction has commenced, or where there has been long and fatiguing illness. They are symptoms here of *plethora*, the reverse of inanition; and bleeding is advised for such syncope by two of the greatest physicians the world has produced *."

Dr. Moseley further supports his plan of treatment, by citing the injunction of HIPPOCRATES, who directs, "In acutis morbis venam secabis, si morbus vehemens appareat, et qui ægrotant ætatis vigore fuerint, et virium robor ipsis adfuerit †."

"Nor," says Dr. Moseley, "is fainting, during the operation, any reason for not repeating it, in the first stage of the fever; for I have often cured it by bleeding only. GALEN asserts the same ‡: and it has frequently happened in the West-Indies, that accidental bleeding from the orifice, when a patient has fallen asleep, to far greater quantities than have ever been directed to be taken away, has carried off the fever entirely: and the surprise on discovering a profusion of blood in the bed, has been changed to joy, for the alteration produced in the patient.

"The efforts of Nature would be oftener successful than they are, were not her powers totally overcome, in hot climates. Bleeding at the nose, in the first stage of this fever, has sometimes removed it; and it is as certain a solution of this fever, as it is of the *Causus* in Europe §.

"In the early part of the disease, spontaneous hæmorrhage is always critical, and should never be suppressed; afterwards it is symptomatical, and if not stopped, the patient soon sinks under it.

"Eruptions about the lips and nose, painful boils, or phlegmons on the body, which always suppurate unkindly, or an abscess forming, are also critical, and generally terminate the disease.

"Sweating, in the first stage of the disease, is seldom critical: for, as SYDENHAM says, on a similar occasion, 'non a prævia concoctione, sed a confuso particularum noxiarum motu, is eliceretur.'

"Whenever sweats are critical, which may happen very early in the disease, if the patient has been well evacuated, they are accompanied with a cessation of vomiting, and a change of the appearance of the urine; the sweating then is to be assiduously pro-

* Aretæus, de Cur. Acut. Morb. Lib. II. Cap. 3. and Alexander of Tralles. Lib. XII. Cap. 3.

† Vide Hippocrat. De Acut. Morb. Victu. Sect. 4. Art. 17.

‡ "Curatur, in principio, sanguinis missione." Introduct. seu Medic. Cap. 13.

§ "Si sanguis è naribus fluxerit, solvitur affectio.

Hippocrat. de Acut. Morb. Victu. Sect. 4. Art. 10.

noted, and if preceded by a bleeding of the nose, it is a complete crisis."

Dr. Moseley's opinion respecting the employment of emetics in this disease forms a singular feature in his plan of treatment.

"The *sickness of the stomach*," says he, "and disagreeable *taste* in the mouth, indicate the quality, and not the quantity of the offending secretions. The vomiting is from irritation in the stomach, and not from plenitude. Therefore vomits are never to be given, though strongly advised by TOWNE:—no, not so much as warm water, recommended by HILLARY, for fear of exciting and stirring up that terrible operation, which, when once begun, no art can, sometimes, allay. Neither will the first part of that counsel authorise disturbing the stomach in this fever, which advises, '*Si es amarum fuerit, vomere confert, et alvum subluere* * ;"—

"For it will be found that the nausea and vomiting will not only remain, '*Verum si ad hæc non solvatur....purgato*†,' but the stomach will be so aggravated, that no purgative can be retained: it will be thrown up the instant it is taken, and the only means that can remove these symptoms, will be defeated.

"The aphorism, '*incipientibus morbis, si quid movendum sit, move*,' is no more a reason for giving a vomit than a purge; and the operation must correspond with the nature of the disease.

"How often have I seen, and lamented, the effects of emetic tartar, given to remove the supposed cause of the treacherous symptom of vomiting!—Even in slight degrees of fever in the West Indies, in young plethoric subjects newly arrived, the stomach has been sometimes destroyed by it. Instead of removing the irritating sickness in this fever, or exciting a diaphoresis, a spasm has been produced in the stomach; incessant vomiting; inflammation; the vessels of the thorax and head have been stifled with blood; and the patient has vomited away his life.

"Nature's index here is misconceived. It is for assistance that she makes these struggles, shewing that the part is suffering destruction. It is not an indication that her oppressions are leaving her in that manner: for who ever saw, or ever heard of a crisis from incessant vomiting?

"When a sufficient quantity of blood has been taken away, which is never done, let the patient's habit be what it may, while the heat, reiterated exacerbations, flushings in the face, thirst, pains in the head, and burning in the eyes, remain; the next step is to evacuate the contents of the bowels, and turn the humours downwards.—"

"This fever is generally preceded and accompanied by costiveness; from which, and the incessant vomiting, ending in blood, it

* Hippocrat. de Acut. Morb. Victu, Sect. 4. Art. 6.

† Ibid. Sect. 4. Art. 7.

seems as if the cœliac artery acted the part by the constitution, here, on the stomach, that the mesenteric arteries do on the intestines, in a dysentery.

“ But if large and repeated bleedings during the first two days should not remove the thirst, pains, flushings, and heat in the eyes, and the state of the stomach should be such as to reject every thing that is taken, so that there is no chance of procuring evacuation by stool, the patient should have repeated purgative clysters, and be put into a *tepid bath*.

“ ‘ *Lavandi sunt qui fervida et perardenti febris laborant, in domo potissimum, ubi solum habeatur tepente aqua plenum, ut totum ægri corpus undiquaque ab aqua operiatur*’ *.”

The doctor proposes that the bath should be composed of “ a weak decoction of camomile flowers, in which a little nitre may be dissolved, and some vinegar added ;” his reasons, however, for this composition, are not given. Of the use of the bath, he says, “ this will often remove every symptom at once ; and dispose the patient to a diaphoresis, which must be promoted until a sufficient quantity of some purgative medicine can be taken, so as to make an effectual operation downwards.

“ There is seldom a necessity to repeat the bath, as the strictures and tension generally yield on the first immersion. The patient should not remain long in the bath, nor should it be deferred until late in the disease, for it can be of no use when the stomach is destroyed.

“ To assuage the vehemence of the thirst attending a *causus*, it was the custom of the ancients to give the juice of cooling vegetables, and fruits, and large draughts of cold water, and acidulated drinks ; and to apply cold, herbaceous, and acid cataplasms to the stomach ; and after Galen, even to put the patient into a cold bath.” —

“ The bold and decisive practice of Paul Ægineta in the *causus*, conveys an adequate idea that the ancients thought this was a disease to be extinguished at once : but if the means he pursued were equal to that intent in the European, it is not in the Tropical *causus*, without bleeding.” —

“ Galen, from whom P. Ægineta has taken this doctrine, cured all his patients, after the first stage of the disease, with cold water ; and goes so far as to say, he never lost one, where cold water was given in a proper manner †.

“ But in giving cold water in the *causus*, none of the ancients, except Celsus, has observed sufficient practical precision. Trallian says, he gave it only in the true *causus*, but not in the spurious *causus*. Ætius says, cold applications, and cold things, should

* Trallianus, de *Causo*.

† Com. 4. in Lib. Hipp. de Acut. Morb. Viçtu, Sect. 4. Art. 11.

not be used but in the height of the exacerbations, lest they should act as repeilents, and shut up the inward heat; and that when any doubt remains concerning using cold water, at first, the chill should be taken off.

“Celsus, with his usual accuracy, says, cold water should not be given before the fourth day, when the fever is at its height; then it should be drank in great quantities, to cool the stomach and præcordia, and to procure a vomiting, where it is necessary; after which, the patient is to be well covered, that he may sleep, by which means a profuse sweat will be raised, which, he says, is an immediate relief. But it is not to be given unless there be great thirst, and heat, and never when there are any pains or swelling about the præcordia, or any complaint in the lungs or fauces, or an ulcer, or faintness, or diarrhœa, or cough*.

“Giving very large draughts of cold water in the caufus, to procure vomiting or sweating, after the manner of the ancients, is still practised in Italy, as I have often seen, where this fever is a common attendant on the heat of summer. But they wait before they give it, until nature has in some measure conquered the disease. Erasius says, this was the practice in his time.

“If cold water be used in our endemial caufus, all the restrictions of Celsus and Ætius are necessary to be observed. But the misfortune here is, that cold water is improper in the beginning of the disease, and our caufus is too rapid in its termination, to admit of any delay, or interval that is not filled up with medicine. Cold water cannot be given at the same time the patient is under the operation of cathartics; and from the first moment of the disease to the last, cathartics must be frequently administered. Our caufus does not give us time to solace patients with grateful things; and to use cold water as an evacuant, would be risking the loss of time for an insufficient, or a doubtful remedy; as we must not look forward to a fourteen-days termination.

“The same objections operate against acids and fruits; and though lemonade, oranges, water melons, and granadillos, are extremely cooling and grateful, they interfere with the operation of purgatives, disorder the stomach, when used at the same time, and cause them to be rejected.

“Vitriolic acid should never be given; all acids are astringent, but this is particularly so: they contract the fibres of the stomach, and prevent purgatives from passing onwards through the intestines. Besides, they destroy the effect of neutral saline purgative medicines. Lemon-juice and salt of wormwood, given in an effervescent state, is a proper auxiliary and febrifuge. But the acid and

* Lib. III. Cap. 7.

alkali should be duly proportioned to the exact point of neutrality, and sufficiently diluted with water."

As far as the patient's *diet* is concerned, Dr. Moseley recommends mucilaginous drinks, free from any stimulating ingredients, such as barley-water, which, he says, always are found to answer best for common drink.

"Clysters," he says, "are to be frequently given in the beginning of the disease, particularly where the patient is costive, and to precede the use of cathartics, and assist their operation.

"The purging medicine to be used in the yellow fever is the tartarum vitriolatum chrysellatum, or sal polychrestus, dissolved in equal parts of simple cinnamon and common water; or in simple cinnamon-water alone. It must be given in small doses, every hour, until it operates; and the patient is to dilute copiously while it operates, with very weak chicken-broth. The quantity of the salt is four drachms, to six or eight ounces of water (as much as the water will dissolve); and the dose of it may be two tablespoonsful. In defect of this medicine, soluble tartar, or sal catharticus amarus, or manna and cream of tartar, must be used. But let me *caution practitioners against adding emetic tartar*, in order to quicken the operation of these medicines, which, however useful it may often be in bilious diseases, may be fatal in this.

"Purging generally completes the suppression of the fever, and carries off the vomiting; but it must be continued while the stools remain bilious or foetid; otherwise the fever will rise, and the vomiting return."

If the fever still continues, and the stomach be settled, after the bowels have been well evacuated, Dr. Moseley seems to waive his objections to the use of antimonial, which he says may be had recourse to as *sudorifics*.—Repeated doses of *James's powder*, are among the remedies he proposes, together with the use of effervescing draughts, and plentiful diluents, such as barley-water, or balm-tea, &c.

"An intermission being procured," says he, "the bark, in substance, is immediately to be given, and repeated every hour, in drachm doses, if the stomach will bear it, until twelve drachms have been taken; which is generally a sufficient security against the progress of the disease. But it must still be continued, at longer intervals, for many days; interposing mild cathartics, such as an infusion of rhubarb and tamarinds, with, or without, a small quantity of sal polychrest, or by keeping the body from a costive state, by clysters."—

"In the *second stage*, or *metaptosis* of this fever, which I believe will seldom happen where the preceding directions have been faithfully pursued, we must draw a distinct line or boundary, in

the very beginning of it, and put *a final period to bleeding*. In this alarming state, all the skill and power of physic must be summoned up, and quickly too, to oppose the various breaches which the disease is now making for the entrance of death.

“The strength now begins to fail; the pulse is sinking; the suffusion of yellowness is perceived in the eyes, neck, and breast; the vomiting incessant, and the stomach rejects every thing that is swallowed. A coldness here, not succeeded by sweat, or bilious discharges, is almost a certain mortal symptom.

“In this state nothing but *purging* can remove the vomiting, and save the patient’s life. Here the corruption of the humours begins, and the stools are acrid, corrosive, and foetid to an extraordinary degree.

“The misfortune here is, that the stomach retaining nothing, without great difficulty, opposes all our attempts. The tartarum vitriolatum, or sal polychrest, is a nauseous medicine; but there is no other proper medicine of which a small quantity will purge; which is the objection against tamarinds, cream of tartar, and manna. Nor is there any other, that I have ever found, equally cooling and attenuating. It must be given; and though part of it will be returned, yet some of it will remain; and by repeating a very small quantity every hour, stools will in time be procured, and generally urine, plentifully. If the patient have five or six stools, the vomiting will cease. He must dilute with weak chicken-broth.

“Clysters may assist, with warm fomentations frequently applied to the region of the præcordia, which sometimes bring out a crop of acrid eruptions about the pit of the stomach, on which the vomiting generally ceases; but in case these attempts fail, the patient should be put into a tepid bath, and have a blister applied to his back, or to the inside of his thighs, or, what is more effectual, to the region of the stomach; and a diaphoretic treatment should be adopted, with *James’s powder*, in order to relieve the internal irritation by revulsion, and enable the stomach to bear purgatives, which alone can carry off the offending humours, and remove that inversion, as it were, of the peristaltic motion, which is the ungovernable circumstance, and by its continuance, the most certainly mortal symptom of this fever.

“It is in vain to think of *bark* and *antiseptics*, though the approach of sphacelation be evident. It is in vain to harass the miserable patient with vitriolic acid, and a multitude of nauseous and tormenting drugs. If stools can be procured, and the bowels kept constantly loose, so that the acrid and putrid colluvies are carried off as fast as they are secreted from the diseased mass, that the stomach may be preserved, and able to retain bark, the disease may be conquered: if not, the patient will die.

“As to what is called fever, there is nothing, after the first stage

of the disease, which deserves that name. Therefore, after the first stage, bark is always to be given, when the stomach will bear it. The worst evil that generally attends giving bark here a little too early, is oppression and load at the stomach; which if clysters do not remove, the purgative solution, or a watery infusion of rhubarb, will; or the uniting some purgative medicine with the bark.

“ Sometimes, soon after the first attack of the fever, an abatement of every symptom is obtained; and those who are not well acquainted with the pulse, and what extensive evacuations this fever demands, conclude that a remission, or an intermission, or a solution of the fever, is decided. But when this happens before the third day, a strict attention to the pulse and the excretions, will discover the deception; and shew, by their disagreement with those symptoms which appear favourable, that they appear so without a proper cause, and cannot be lasting.

“ They who unfortunately have any dependence here, desist from farther evacuations, and proceed to giving bark, and cordial nourishment. Every person about the patient is filled with flattering hopes of his recovery. But the evacuations have been discontinued too soon, and have not been sufficient to extinguish entirely the inflammatory disposition of the disease;—which, now aggravated, breaks out, and rages with redoubled violence, and hurries the patient into the second stage of the disease, and then soon out of the world.

“ This circumstance of the endemial causus, I believe, has never been noticed before. They who have mistaken the bilious remittent for the causus, consequently speak of remissions, which do not happen in this fever.

“ Some of the ancients justly referred all continued fevers to some species of intermittent. *Ætius* says, a causus which exacerbates every other day, is a species of quotidian; that which exacerbates every other day, of a tertian, &c. and the difference only is, that the causus never comes on with rigor, nor intermits:—but when it exacerbates every other day, there is a diminution of fever, like a remission.

“ These remarks are of infinite importance in hot climates; and, if rightly understood, point out the different times for evacuations, or for using stimulants and blisters to advantage, and for making exertions for intermissions, where spontaneous crises are not to be expected: and though what *Celsus* observes in fevers (*Lib. III. Cap. 3.*) often happens in hot climates, that the accessions are so confounded, that neither their coming on, nor their duration, can be correctly ascertained, yet it seldom happens in continued fevers, that one, and oftener two exacerbations, are not perceived within the nycthemeron.

“ Great caution is to be observed, when the yellowness, which

is critical, discovered in the eyes, on the third and fourth day, and a general suffusion over the whole body, that the same treatment is not pursued, which is necessary, where that appearance is symptomatical.”—

“A *yellow suffusion* may be either *critical* or *symptomatical*. Critical, as Towne supposes, but it must be when there is a tranquil cessation, without languor, of all the other symptoms, with warm perspiration:—and symptomatical, as Hillary supposes, when accompanied with lassitude, pausea, or vomiting, colliquative sweats, and sunk pulse.”

The author observes, that violent disputes have arisen between Towne and Hillary, concerning the application of *blisters* at this period of the fever. The former says, “Blisters are also of great moment and efficacy at this juncture, and are therefore not to be foreborne any longer. The bile being now afloat, is to be discharged by every out-let, *qua data porta ruit*. It is almost incredible what large quantities of this juice may be evacuated by the external use of cantharides; for their salts entering now, and mixing with the mass of blood, dissolve and attenuate the viscid particles, prevent the growing lentor, and, by their caustic quality, open the mouths of the vessels for their expulsion. Another great benefit we gain from blisters, is the tendency they have to the bladder, by which means another plentiful discharge of the redundant bile is obtained; for by the precipitating, if I may use the expression, those particles to the urinary organs, they throw off abundance of them by that secretion. I can affirm from experience, that when they have been applied before it is too late, a coma, the deadly symptom of this distemper, has very rarely ensued.”

On the other hand, Hillary says, when speaking of their effects in this fever in particular:—“I have observed that the coma, tremors, subfultus tendinum, the coldness of the extreme parts, and the low pulse (though this sometimes has been rendered a little quicker, but not more full), has not only been increased thereby, and the hæmorrhage which usually attends the fever hastened on, or if come on before, it has been increased on their application; and I have seen a vesicatory which I ordered to be taken off, as I usually do as soon as I come, in this fever, that the part where it was laid was turned black, and perfectly sphacelated, and if the spine, and ends of the ribs had not hindered, a large square passage into the thorax would have been opened, if the patient had lived a few hours after it; but he died two hours after I came: and the reflection, that I have never ordered any vesicatories to be applied in this fever, and have always strictly forbidden their application in it, I must say, gives me great satisfaction.”

“If blisters,” says Dr. Moseley, “had that effect on the body which either of these physicians assert, they would certainly be improper in this fever;” but blisters are found to be a safe and

powerful remedy. Natives, and long residents in the West-Indies, are seldom disturbed by inflammatory diseases; and blisters can scarcely ever be applied amiss. They form a drain for the acrid serum of the blood, and give a stimulus to the languid vessels, which often keep up disorders from debility, obstruction, and irritability.

“ If bleeding, purging, baths, and diaphoretics, do not remove the fever in its first stage:—

“ If purging, baths, diaphoretics, and blisters, do not remove it in the second stage:—

“ If the vomiting cannot be suppressed, and bark retained:—

“ The *last stage* of the disease appears with its *direful vomiting*; which at first has generally the appearance of the grounds of coffee; then that of a slate colour; and then dark, thick, and grumous. The interior surfaces of the body are all oozing out blood into their cavities.—Every excretion is corrupted blood.

“ I have seen people recover after the vomiting has resembled coffee-grounds, when any purgative medicine, united with a decoction of bark, could be made to pass downwards: the unnatural actions of the stomach were respite, and the state of that organ, and the bowels, so relieved, that bark could be taken with effect, from the power of the internal absorbents being restored, which had been subverted by incessant vomiting. For in this state of the vomiting, the rupture of the interior vessels is only partial, and the demolition of the stomach and intestinal tube only commencing; and though the prospect is very gloomy, there are still some rays of hope.

“ But when this state has continued for many hours, and the internal hæmorrhage becomes general, the stomach and bowels have lost all power of restricting the blood-vessels, the bond of union between the solids and fluids is dissolved, and the vital principle is too much sunk ever to be raised. Then black, gangrenous, mortified blood, is discharged upwards and downwards, and there are no hopes of life*.

“ The application of bark and vinegar in baths, fomentations and cataplasms; sinapisms and acrid cataplasms to the feet; camphire, snake-root, and cordial antiseptics; have been sometimes of service, even here, as many practitioners have said: and therefore, though I am of a different opinion, they should not be omitted.”

Opium, rashly advised by Hillary and some others, Dr. Moseley considers a fatal medicine in this fever, on account of its inflammatory tendency.

The regimen he directs during the first three or four days, is—

* “ Quibus per morbos acutos bilis atra, aut velut sanguis niger subi erit, ii postmodum moriuntur.” Hippocrat. Aphor. 23. Sect. 4.

“thin, soft, cooling drinks, emulsions, and chicken-broth. These and medicines, will be as much as the stomach can sustain, even were any thing else necessary. After the crisis, or after the first stage of the disease, panada, gruel, and sago, are the most proper articles for nourishment; with the addition of a spoonful of Madeira wine, where the patient is weak, languid, and exhausted. Wine cherishes the stomach, and acts as a cordial, mixed with these nourishments: but if it be given any other way, it affects the head, and heats the patient.”

GENUS VI. SYNOCHUS.

Synochus, *Sauv.* gen. 81. *Lin.* 13.

Lenta, *Lin.* 14.

Phrenitis, *Vog.* 11.

Febris continua putrida, *Boerb.* 730.

This is a contagious disease, being a complication of a synocha and typhus; for the description and cure of which, we must of consequence refer to what hath been already said concerning these diseases.

The *Hæctic* FEVER.

Hæctica, *Sauv.* gen. 83. *Lin.* 24. *Vog.* 80. *Sag.* 684.

This disease is reckoned by Dr. Cullen to be merely symptomatic; as indeed seems very probable, since it very generally accompanies absorptions of pus into the blood from internal suppurations, or indeed from such as are external, provided they be very large or of a bad kind.

1. *Description.*] The best, indeed, the only proper, description of this disorder we have is that by Dr. Heberden. According to him, the appearance of the hæctic fever is not unlike that of the genuine intermittent, from which, however, the disease is very different in its nature, while at the same time it is much more dangerous. In the true intermittent, the three stages of cold, heat, and sweat, are far more distinctly marked, the whole fit is much longer, the period which it observes is more constant and regular, and the intermissions are more perfect, than in the hæctic fever. For in the latter, even in the clearest remission, there is usually a feverish quickness perceptible in the pulse, which seldom fails to exceed the utmost limit of a healthy one by at least ten strokes in a minute.

The chillness of the hæctic fever is sometimes succeeded by heat, and sometimes immediately by a sweat without any intermediate

state of heat. The heat will sometimes come on without any remarkable chillness preceding; and the chillness has been observed to go off without being followed either by heat or sweat. The duration of these stages is seldom the same for three fits together; and as it is not uncommon for one of them to be wanting, the length of the whole fit must vary much more than in the true intermittent; but in general it is much shorter.

A patient subjected to hectic fever is little or nothing relieved by the coming on of the sweat; but is often as anxious and restless under it as during the chillness or heat. When the sweat is over, the fever will sometimes continue; and in the middle of the fever the chillness will return; which is a most certain mark of this disease.

The hectic fever will return with great exactness, like an intermittent, for two or perhaps three fits; but Dr. Heberden informs us, that he does not remember ever to have known it keep the same period for four fits successively. The paroxysm will now and then keep off for ten or twelve days; and at other times, especially when the patient is very ill, it will return so frequently on the same day, that the chillness of a new fit will follow immediately the sweat of the former. It is not unusual to have many threatenings of a shivering in the same day; and some degree of drowsiness is apt to attend the cessation of a fit.

The urine in a true intermittent is clear in the fits and turbid in the intervals; but in the hectic fever it is liable to all kinds of irregularity. It will be equally clear or turbid in both stages, or turbid in the fits and clear in the intervals; and sometimes it will be, as in a true intermittent, clear during the fever, and thick at the going off.

Hectic patients often complain of pains like those of the rheumatism; which either affect by turns almost every part of the body, or else return constantly to the same part; which is often at a great distance from the seat of the principal disorder, and, as far as is known, without any peculiar connection with it. These pains are so violent in some patients, as to require a large quantity of opium. As far as Dr. Heberden has observed, they are most common where the hectic arises from some ulcer open to the external air, as in cancers of the face, breast, &c. Joined with this fever, and arising probably from one common cause, he has been surprised to see swellings of the limbs, neck, or trunk of the body, rise up almost in an instant, as if the part was all at once grown fatter. These swellings are not painful, hard, or discoloured, and they continue for several hours.

Dr. Heberden has seen this fever attack those who seemed in tolerable health, in a sudden and violent manner, like a common inflammatory one; and like that, also, in a very short time bring them into imminent danger of their lives; after which it has begun

to abate, and to afford hopes of a perfect recovery. But though the danger might be over for the present, and but little of a fever remain; yet that little has soon demonstrated, that it was kept up by some great mischief within, and, proving unconquerable by any remedies, has gradually undermined the health of the patient, and never ceased except with his life. This manner of its beginning, however, is extraordinary. It much oftener dissembles its strength at first; and creeps on so slowly, that the subjects of it, though they be not perfectly well, yet for some months hardly think themselves ill; complaining only of being sooner tired with exercise than usual, of want of appetite, and of falling away. But gentle as the symptoms may seem, if the pulse be quicker than ordinary, so as to have the artery to beat ninety times and perhaps 120 times in a minute, there is the greatest reason to be apprehensive of the event. In no disorder, perhaps, is the pulse of more use to guide our judgment than in the hectic fever; yet even here we must be upon our guard, and not trust entirely to this criterion; for one in about twenty patients, with all the worst signs of decay from some incurable cause, which irresistibly goes on to destroy his life, will show not the smallest degree of quickness, nor any other irregularity of the pulse, to the day of his death.

Mr. Hunter considers this disease as one of the remote constitutional sympathetic affections, arising from an origin very different from the other sympathizing effects which he has described in his *Treatise on the Blood, &c.*

“When it is a consequence,” says he, “of a local disease, it has commonly been preceded by the first process of the former, viz. inflammation and suppuration, but has not been able to accomplish granulation and cicatrization, so as to complete the cure. It may be said to be a constitution now become affected with a local disease or irritation, which the constitution is conscious of, and of which it cannot relieve itself, and cannot cure; for while the inflammation lasts, which is only preparatory, and an immediate effect of most injuries, and in parts which can only affect the constitution, so as to call up its powers, there can be no hectic.”

“We should distinguish well between a hectic arising from a local complaint entirely, where the constitution is good, but only disturbed by too great an irritation; and a hectic arising principally from the badness of the constitution, which does not dispose the parts for a healing state; for in the first it is only necessary to remove the part (if removable), and then all will do well; but in the other we gain nothing by a removal, except the wound made by the operation is much less, and much more easily put into a local method of cure; so that this bad constitution falls less under this (the operation taken into the account) than under the former state; but all this depends on nice discrimination.”

“The hectic comes on at very different periods after the inflam-

mation, and commencement of suppuration, owing to a variety of circumstances. First, some constitutions much more easily fall into this state than others, having less powers of resistance. The quantity of incurable disease must be such as can affect the constitution, and in whatever situation, or whatever parts, it will be always as to the quantity of disease in those situations or parts in the constitution, which will make the time to vary very considerably. In many diseases it would appear, from the manner of coming on, that they retard the commencement of the hectic, such as lumbar abscesses. But when such abscesses are put into that state, in which the constitution is to make its efforts towards a cure, but is not equal to the task, then the hectic commences."

2. *Causes, &c.*] This fever will supervene whenever there is a great collection of matter formed in any part of the body; but it more particularly attends upon the inflammation of a scirrhus gland, and even upon one that is slight and only just beginning; the fever growing worse in proportion as the gland becomes more inflamed, ulcered, or gangrenous. And such is the lingering nature of those glandular disorders, that the first of those stages will continue for many months, and the second for some years.

If this scirrhus inflammation be external, or in the lungs, or some of the abdominal viscera, where the disturbance of their functions plainly points out the seat of the disorder, no doubt can be entertained concerning the cause of the fever. But if the part affected be not obvious to the senses, and its precise functions be not known, the hectic, which is there only part of the train of another disease, may be mistaken for the primary or only one.

Lying-in women, on account of the violence sustained in delivery, generally die when affected with this fever. Women of the age of near fifty and upwards are particularly liable to it. For, upon the cessation of their natural discharge, the glands of the breasts, ovaries, or womb, too commonly begin to grow scirrhus, and proceed to be cancerous. Not only these, but the glandular parts of all the abdominal viscera, are disposed to be affected at this particular time, and to become the seats of incurable disorders.

The injuries done to the stomach and liver by hard drinking are attended with similar symptoms, and terminate in the same manner.

Dr. Heberden observes, that the slightest wound by a fine-pointed instrument is known upon some occasions to bring on the greatest disturbance, and the most alarming symptoms, nay even death itself. For not only the wounded part will swell and be painful, but by turns almost every part of the body; and very distant parts have been known to come even to suppuration. These symptoms are constantly accompanied with this irregular intermittent, which lasts as long as any of them remain.

Mr. Hunter, speaking of the cause of hectic fever says, "it takes its rise from a variety of causes, but which I shall divide into two species, with regard to diseased parts, viz. the parts *vital*, and the parts *not vital*. The only difference between these two is, probably, merely in time, with respect to its coming on, and its progress when come on: but what is very similar to the disease of a *vital* part, is quantity of incurable disease.

"The causes of hectic, arising from diseases of the vital parts, may be many, of which a great proportion would not produce the hectic if they were in any other part of the body; such, for instance, as the formation of tumors, either in, or so as to press upon some vital part, or a part whose functions are immediately connected with life. Schirri in the stomach, mesenteric glands, which tumors any-where else would not produce the hectic; many complaints too of vital parts, as diseased lungs, liver, &c. all of these produce the hectic, and much sooner than if the parts were not vital. In many cases where those causes of the hectic come on quickly, it frequently follows so quick upon the sympathetic fever, that the one seems to run into the other: this I have often seen in the lumbar abscess. They also produce symptoms according to the nature of the part injured, as coughs, when in the lungs; sickness and vomiting, when in the stomach; and probably bring on many other complaints, as dropsies, jaundice, &c. but which are not peculiar to the hectic.

"When the hectic arises from a disease in a part not vital, it sooner or later commences, according as it is in the power of the parts to heal, or continue the disease. If far from the source of the circulation, with the same quantity of disease, it will come on sooner. When in parts not vital, it is generally in those parts where so great a quantity of disease can take place (without the power of being diminished in size, as is the case with the diseases in most joints) as to affect the constitution, and also in such parts as have naturally but little powers to heal; we must at the same time include parts that are well-disposed to take on such specific diseases as are not readily cured in any situation; such parts are principally the larger joints, both of the trunk and extremities; but in the small joints of the toes and fingers, although the same local effects take place, as in the larger, yet the constitution is not made sensible of it; we therefore find a scrofulous joint of a toe or finger going on for years, without affecting the constitution.

"The ankle, wrist, elbow, and even the shoulder, may be affected much longer than either the knee, hip-joint, or loins, before the constitution sympathizes with their want of powers to heal.

"Although the hectic commonly arises from some incurable local disease of a vital part, or of a common part when of some magnitude, yet it is possible for it to be an original disease in the

constitution: the constitution may fall into the same mode of action, without any local cause whatever, at least that we know of.

"Hectic may be said to be a slow mode of dissolution: the general symptoms are those of a low, or slow fever, attended with weakness, but more with the action of weakness than real weakness; for, upon the removal of the hectic cause, the action of strength is immediately produced, as well as every natural function, however much it was decreased before.

"The particular symptoms are debility; a small, quick, and sharp pulse; the blood forsaking the skin; loss of appetite; often rejection of all aliment by the stomach; wasting; a great readiness to be thrown into sweats; sweating spontaneously when in bed; frequently a constitutional purging; the urine clear.

"This disease has been, and is still in general laid to the charge of the absorption of pus into the constitution from a sore; but I have long imagined that an absorption of pus has been too much blamed as the cause of many of the bad symptoms which frequently attack people who have sores.

"*First*, this symptom almost constantly attends suppuration when in particular parts, such as the vital parts, as well as many inflammations before actual suppuration has taken place, as in many of the larger joints, called white swellings; while the same kind and quantity of inflammation and suppuration in any of the fleshy parts, and especially such of them as are near the source of the circulation, have in general no such effect; in those cases, therefore, it is only an effect upon the constitution produced by a local complaint, having a peculiar property, which I shall now consider.

"I observed, that with all diseases of vital parts, the constitution sympathized more readily than with diseases of any other parts; and also, that all diseases of vital parts are more difficult of cure in general than those which are not vital. I have observed, likewise, that all the diseases of bones, ligaments, and tendons, affected the constitution more readily than those of muscles, skin, cellular membrane, &c. and we find that the same general principles are followed in the universal remote sympathy, produced by local diseases of those parts.

"When the disease is in vital parts, and is such as not to kill by its first constitutional effects, the constitution then becomes teazed with a complaint which is disturbing the necessary actions of health, the parts being vital; there is, besides, the universal sympathy with a disease which gives the irritation of being incurable.

"In the large joints it continues to harass the constitution with a disease, where the parts have no power, or, what is more probable, have no disposition to produce a salutary inflammation and suppuration; the constitution, therefore, is also irritated with an incurable disease."

Mr. Hunter having given this as the *theory of the cause of the hectic*, proceeds to consider how far the absorption of matter may be justly supposed a cause of the disease.

“If,” says he, “the absorption of matter always produced such symptoms, I do not see how any patient, who has a large sore, could possibly escape this disease; because we have as yet no reason to suppose, that any one sore has more power of absorption than another.

“If in those cases where there is an hectic constitution, the absorption is really greater than when the habit is healthy, it will be difficult to determine whether this increase of absorption is a cause, or an effect.

“If it be a cause, it must arise from a particular disposition in the sore to absorb more at one time than common, even while it was in a healthy state; for the sore must be healthy and then absorb, which hurts the constitution; moreover, as the sore is a part of that constitution, it must of course be affected in turn; and what reason we have to suppose that a healthy sore of a healthy constitution should begin to absorb more at one time than another, I must own I cannot discover. If this increase of absorption does not depend upon the nature of the sore, it must then take its rise from the constitution; and if so, there is then a peculiarity in the constitution, so that the whole of the symptoms cannot arise entirely from the absorption of matter as a cause, but must depend on a peculiar constitution, and absorption combined.

“If absorption of matter produced such violent effects as are commonly ascribed to it (which, indeed, are never of the inflammatory kind, but of the hectic), why does not the venereal matter do the same? We often know that absorption is going on by the progress of buboes; and I have known a large bubo, which was just ready to break, absorbed from a few days’ sickness at sea, while the person continued at sea for twenty-four days after; yet, in such cases, no symptoms appear till the matter begins to have its specific effects, and these very symptoms are not similar to those which are called hectic. From reasoning, we ought to expect that the venereal matter would act with greater violence than the common matter from a healthy sore. Although matter too is frequently formed on the inside of the veins, in cases of inflammation of their cavities, and this matter cannot fail of getting into the circulation, yet in these cases we have not the hectic disposition, but only the inflammatory, and sometimes death. We likewise find very large collections of matter, which have been produced without visible inflammation, such as many of the serofulous kind, and which are wholly absorbed, even in a very short time, yet no bad symptoms follow.

“We may, therefore, from hence conclude, that *the absorption of pus* from a sore into the circulation, *cannot be a cause* of so much mischief as is generally supposed; and if it was owing to matter in

the constitution, I do not see how these symptoms could ever cease, till suppuration ceased, which does not readily happen in such constitutions, their sores being tedious in healing. We find, however, that such patients often get well of the hectic before suppuration ceases, even when no medicine was given; and in the case of veins, there is great reason to believe, that after all the bad symptoms are removed, suppuration is still going on, as we find it so in a fore; pus may, therefore, still pass into the constitution from the veins, and yet the hectic may not be produced, which would certainly be the case if those bad symptoms were occasioned by the matter getting into the circulation."

Mr. Hunter, however, very much doubts the fact of absorption going on more in one sore than another; and even if it does he thinks it of no consequence. "I am," says he, "much more inclined to believe, that this hectic disposition arises from the effect which irritation of a vital organ, and some other parts, such as joints (being either incurable in themselves, or being so to the constitution for a time), have on the constitution.

"We may remark, that in large abscesses which have not been preceded by inflammation, the hectic disposition seldom or never comes on till after they are opened (although they may have been forming matter for months); but in such cases, the disposition often comes on soon after opening, and in others, very late. Till the stimulus for restoring parts is given, no such effect can take place; and if the parts are well disposed to heal, no hectic disposition comes on, neither is the constitution at all affected. In diseased joints also, which are attended with inflammation, if the parts were capable of taking on a salutary inflammation, we should have only the first sympathetic fever; but as they seldom are capable of doing this, the constitution becomes teased with a complaint, not taking on the immediate and salutary steps towards a cure. In the venereal disease too, where we know that the venereal matter has got into the constitution, and that the matter is producing its specific effects, yet no hectic comes on, till the constitution is harassed with an incurable disease, and this not till long after all the parts are healed, with regard to recent disease, and no matter is formed for further absorption. That absorption does take place in sores, we have reason to believe, and upon this fact a mode of dressing sores has been advised. The following is a remarkable instance of it in a bubo: A young man had a chancre and three buboes, one of which appeared when the other two were almost cured. This was very large, and at the bottom of the belly. When it had suppurated, and was pretty near breaking, it diminished very quickly, and in two or three days was entirely gone. While this was going on, he observed his urine wheyish and thick, while making it, which went entirely off when the bubo had subsided. Before the bubo began to subside, he was rather mending

in his health, which continued to mend, nor did the diminution of the bubo alter the state of his health.

“The hectic, from what has been said, appears in some measure to depend on the parts being stimulated to produce an effect which is beyond their powers: that this stimulus is sooner or later in taking place in different cases, and that the constitution becomes affected by it. The hectic disposition arises from diseased lungs, lumbar abscesses, white swellings, scrofulous joints, &c.”

3. *Prognosis.*] This anomalous fever is never less dangerous than when it belongs to a kindly suppuration, into which all the diseased parts are melted down, and for which there is a proper outlet.

The symptoms and danger from some small punctures, with their concomitant fever, most frequently give way in a few days; though in some persons they have continued for two or three months, and in others have proved fatal.

The inflammation of internal scirrhus glands, or of those in the breasts, sometimes goes off, and the fever, which depended upon it, ceases; but it much oftener happens, that it proceeds to cancerous and gangrenous ulcers, and terminates only in death. Death is also, almost universally, the consequence of hectic fever from tubercles of the lungs, which have in general at least been considered as glandular bodies in a scirrhus state.

On the termination of this disease, Mr. Hunter says, “If the local disease does not or cannot heal, and is such as to affect the constitution, it then brings on the hectic, and sooner or later dissolution takes place; for the hectic is an action of disease, and of a particular kind; but dissolution is giving way to disease of every kind, therefore has no determined form arising from the nature of the preceding disease.

“It has been supposed,” continues Mr. Hunter, “that this disease arises from the absorption of matter. It appears to be in many cases an effect arising from violent and long-continued inflammations and suppurations, although not incurable in themselves (therefore, in those respects, not similar to the hectic); and which in many instances are known to produce the greatest changes in the constitution. Such often arise from very bad compound fractures, from amputations of the extremities, especially the lower, and more particularly the thigh, in which cases the sympathetic fever has run high, which would appear to be necessary, or preparatory; but in the hectic, it is not necessary that the constitution should have suffered at all in the first stages of the disease; dissolution seems to be more connected with what is past, than with the present alone, which is the reverse of the hectic. We never find this disease take place in consequence of small wounds, or such wounds as have affected the constitution but little in its first stages; but which may affect the constitution much in its second, such as small wounds producing the locked jaw. It would appear

to take place in our hospitals more generally than in private houses, and more readily in large cities than in the country. We shall find that the hectic and this are by no means the same disease, differing exceedingly in their causes, and in many of their effects; for in the cases of compound fractures and amputations we find the constitution often capable of going through the inflammatory and sympathetic fever, producing suppuration and granulation, as well as continuing the production of these for some time, yet sinking under them at last, and often immediately, without a seeming cause. This effect will more readily take place, if the person was in full health before the accident or operation, than if he had been somewhat accustomed to the other, or true hectic; for the symptoms of dissolution seldom or never take place, if the violence committed has been to get rid of a hectic cause. It sometimes takes place early, in consequence of local injury, and would seem to be a continuation of the sympathetic fever; as if the constitution was not able to relieve itself of the general affection, or that the parts could not go into the true suppurative disposition. We see this frequently after removing a limb, especially in the lower extremity, and after cutting for the stone in very fat men, above the middle age, and who have lived well.

“ The first symptoms are generally those of the stomach, which produce shivering: vomiting immediately follows, if not an immediate attendant; there is great oppression and anxiety, the persons conceiving they must die. There is a small quick pulse; perhaps bleeding from the whole surface of the fore, often mortification, with every sign of dissolution in the countenance; as it arises with the symptoms of death, its termination is pretty quick. Here is a very fatal disease taking place; in some almost immediately, when all appeared to be within the power of the machine, and therefore cannot immediately arise from the fore itself; for it is very common after such operations as usually do well; but the hectic always takes place in consequence of those sores which seldom or never get well in any case; yet the fore certainly assists in bringing on dissolution, because we never see the disease take place when the fore is healed, nor in those where the constitution seems not to be equal to the task, as is the cause of the hectic.

“ The hectic is much slower in its progress, and seems to be a simple and an immediate effect, arising from a continued cause which is local; by removing the cause, therefore, the effect ceases, and the havoc made on the constitution is soon restored; persons, therefore, do much better in consequence of the hectic having in some degree taken place, prior to the removal of the cause. But dissolution is a change of the constitution in consequence of causes which now do not wholly exist, and in many cases it does not take place till the constitution appears to be capable easily of performing all its functions, and a removal of the parts does not relieve, as

in the hectic ; for dissolution does not depend for its continuance upon the presence of the disease.

“Death or dissolution appears not to be going on equally fast in every vital part ; for we shall have many people very near their termination, yet some vital actions shall be good, and tolerably strong ; and if it is a visible action, and life depends much upon this action, the patients shall not appear to be so near their end as they really are : thus I have seen dying people whose pulse was full and strong as usual, on the day previous to their death, but it has sunk almost at once, and then become extremely quick, with a thrill : on such occasions it shall rise again, making a strong effort, and after a short time, a moisture shall probably come on the skin, which shall in this state of pulse be warm ; but upon the sinking of the pulse, shall become cold and clammy : breathing shall become very imperfect, almost like short catchings, and the person shall soon die.”

Mr. Hunter has observed that, in many cases, disease produces such weakness as at last to destroy itself : nay even that the symptoms or consequences of the disease disappear before death. He illustrates this by the following curious case :

“A gentlewoman, who was above seventy-five, was anasarcaous all over : the abdomen was very full and large ; she made but very little water ; her breathing was so difficult as to make her purple in the face, so that most probably there was water in the chest ; her pulse was extremely irregular ; fluttering, trembling, intermitting, and small. Her legs were punctured with a lancet, and discharged very freely for more than three weeks, which emptied the cellular membrane of the body, as well as in some degree the abdomen ; the breathing became free and easy, so that we supposed the water in the chest was absorbed ; the pulse became regular, soft, and fuller, and the appetite in some degree mended ; in which state she seemed free from disease, having only some of the consequences still remaining. The quantity of urine increased to the natural secretion ; but notwithstanding actual disease seemed to be gone, yet she became weaker and weaker, in which state she existed for near a month, and died. Some days prior to death, a purple and then a livid appearance came upon the legs, with some spots of extravasated blood where the punctures had been made, on which blisters arose, at first filled with serum, then with bloody serum, all of them threatening mortification.

“Even when in the state of approaching death, we often find a soft, quiet, and regular pulse, having not the least degree of irritability in it, and this when there is every other sign of approaching death ; such as entire loss of appetite, no rest, hickup, the feet cold, and partial, cold, clammy sweats, &c.

“A lady appeared to have lost all diseased action, only the con-

sequences of disease remaining, viz. weakness, with swelled legs: she made little or no water: at length she became so weak, as hardly to articulate; she lay in a kind of doze, was only roused to impression, and only took food by spoonful when desired; the pulse so small as hardly to be felt: her extremities were cold, and she had all the signs of approaching dissolution, which took place; yet within thirty-six hours before she died, the whole water in her legs and thighs was taken up, her urine increased, and about ten hours previous to her death, the legs, &c. were as small as ever. As I consider the dropsy to be a disease, and not simply weakness, which this case would in some measure shew from the result, I should wish to ask, whether the absorption of water was not owing to the disease being gone, and whether the disease being gone, the absorbents did not set to work? If so, then dissolution may be a cessation of disease, and persons die of weakness simply; or simply, either the want of powers to act, or the want of that stimulus of necessity to act, by which means a cessation of action takes place."

4. *Cure.*] It is not to be expected that the same remedies will in every case be adapted to a fever which, arising from very different causes, is attended with such a variety of symptoms. Dr. Heberden observes, that a mixture of asafoetida and opium has in some persons seemed singularly serviceable in this fever, when brought on by a small wound; but in most other cases the principal, if not the sole attention of the physician must be employed in relieving the symptoms, by tempering the heat, by preventing both costiveness and purging, by procuring sleep, and by checking the sweats. If, at the same time, he put the body into as good general health as may be, by air, exercise, and a proper course of mild diet, he can perhaps do nothing better than to leave all the rest to nature. In some few fortunate patients, nature appears to have such resources, as may afford reason for entertaining hopes of cure, even in very bad cases. For some have recovered from this fever attended with every symptom of an abdominal viscus incurably diseased, after all probable methods of relief from art had been tried in vain, and after the flesh and strength were so exhausted as to leave scarce any hopes from nature. In those deplorable circumstances, there has arisen a swelling not far from the probable seat of the disorder, and yet without any discoverable communication with it. This swelling has advanced to an abscess; in consequence of which the pulse has soon returned to its natural state, as have also the appetite, flesh, and strength. What nature has performed in those rare cases, Dr. Heberden acquaints us, he has often endeavoured to imitate, by making issues or applying blisters near the seat of the disease; but he cannot say with the same success.

It seems at present, Dr. Heberden observes, the opinion of many practitioners, that the gangrenes will be stopped, and suppuration

become more kindly, by the use of Peruvian bark; and therefore this remedy is always either advised or permitted in the irregular fever joined with suppurations and gangrenes. But he affirms he does not remember ever to have seen any good effect from the bark in this fever unattended with an apparent ulcer; and even in gangrenes it so often fails, that in successful cases, where it has been administered, there must be room for suspicion that the success was owing to another cause. Dr. Heberden acknowledges at the same time, that he never saw any harm from the bark, in these, or indeed in any other cases, except a slight temporary purging or sickness, where it has happened to disagree with the stomach, or where the latter has been loaded by taking the medicine too fast, especially in dry boluses wrapped in wafer-paper.

In hectic illnesses, where all other means have proved ineffectual, a journey to Bath is usually proposed by the friends, and wished for by the sick; but Dr. Heberden justly observes, that, besides the fatigue and many inconveniences of a journey to a dying person, the Bath waters are peculiarly hurtful in this fever, which they never fail to increase, and thereby aggravate the sufferings and hasten the death of the patient.

Mr. Hunter describes the treatment of hectic in the following way: "We have as yet, I am afraid," says he, "no cure for any of the consequences above related; I believe that depends on the cure of the cause, viz. the local complaint, or in its removal; the effects, I fear, are not to be cured. Strengtheners, and what are called antiseptics, are recommended."

On the class of medicines called strengtheners, which are proposed to counteract the debility which has taken place, the author has no great reliance.

"Antiseptics," he says, "have been employed from an idea that pus, when absorbed, gives the blood a tendency to putrefaction. To prevent both of these effects from taking place, the same medicines are however recommended. These are bark and wine.

"Bark will, in most cases, only assist in supporting a constitution. I should suppose it impossible to cure a disease of the constitution till the cause be removed; however, it may be supposed that these medicines may make the constitution less susceptible of the disease, and may also contribute to lessen the cause, by disposing the local complaints to heal: but where the hectic arises from specific disease, as for instance, if a hectic disposition comes on from a venereal disposition, bark will enable the constitution to support it better than it otherwise could have done, but can never remove it."

Wine, Mr. Hunter apprehends, rather does harm if it increases the actions of the machine without giving strength, which is a thing carefully to be avoided. He says farther,

“When the hectic arises from local diseases, in such parts as the constitution can bear a removal of, then the diseased part should be removed, viz. when it arises from some incurable disease in an extremity, although all the symptoms above described should have already taken place, we shall find, that upon a removal of the limb, the symptoms will abate almost immediately. I have known a hectic pulse at one hundred and twenty sink to ninety in a few hours, upon the removal of the hectic cause. I have known persons sleep sound the first night without an opiate, who had not slept tolerably for weeks before. I have known cold sweats stop immediately, as well as those called colliquative. I have known a purging immediately stop, upon the removal of the hectic cause, and the urine drop its sediment. It is possible too, that the pain in the operation, and the sympathetic affection of the constitution, may assist in these salutary effects. It is an action diametrically opposite to the hectic, and may be said to bring back the constitution to a natural state.”

ORDER II. PHLEGMASIÆ.

Phlegmasiæ membranosæ et parenchymatosæ, *Sauv.* Class III.

Ord. I. II. *Sag.* 605.

Morbi febriles phlogistici, *Lin.* Class III.

Febres continuæ compositæ inflammatoriæ, V.

Morbi acuti febriles, *Boerb.* 770.

Febres inflammatoriæ, *Hoff.* II. 105. *Junck.* 61.

THE phlegmasiæ, or topical inflammations, are a very numerous assemblage of diseases. Their great characteristics are, the general symptoms of fever, and a topical inflammation attended with the interruption of some important function. And in most instances, when blood is drawn, it is found upon coagulation to be covered with a buffy coat. Under this order, many important genera are comprehended, each requiring a separate consideration.

GENUS VII. PHLOGOSIS.

Sp. I. PHLOGOSIS PHLEGMONE.

Phlegmone auctorum, *Sauv.* gen. 15. *Lin.* 39. *Vog.* 351.
Inflammatio, *Lin.* 231. *Boerb.* 370. *Junck.* 20.

This disease is a synocha fever, accompanied with an inflammation of some particular part either external or internal, and consequently it varies very much in its form and the degree of danger

attending it according to the situation and functions of the part affected with topical inflammation. To this species, therefore, belong the following diseases :

Furunculus, *Sauv.* gen. 18. *Vog.* 352.

Terminthus, *Vog.* 381.

Pupula, *Lin.* 275. *Sauv.* p. 6.

Varus, *Vog.* 436. *Lin.* 269. *Sauv.* p. 7.

Bacchia, *Lin.* 270.

Gutta Rotea, *Sauv.* gen. 4.

Gutta rosacea, *Vog.* 437.

Hordeolum, *Sauv.* gen. 27. *Lin.* 276. *Vog.* 434.

Otalgia, *Sauv.* gen. 197. *Lin.* 44. *Vog.* 148.

Dolor otalgicus, *Hoffm.* II. 336.

Parulis, *Vog.* 362.

Mastodynia, *Sauv.* gen. 210. *Vog.* 153.

Paronychia, *Sauv.* gen. 21. *Lin.* 258. *Vog.* 345.

Arthrocace, *Sauv.* gen. 78. *Lin.* 256.

Pædarthrocace, *Vog.* 419.

Spina ventosa, *Boerh.* 526.

Phimosis, *Sauv.* gen. 22. *Lin.* 297. *Vog.* 348.

Paraphimosis, *Vog.* 349.

On the cure of inflammations, we shall speak at large in our second volume. We shall here however observe, that Dr. Cullen lays down the following indications. 1. To remove the remote causes when they are evident and continue to operate. 2. To take off the phlogistic diathesis affecting the whole system, or the particular part. 3. To take off the spasm of the particular part by remedies applied to the whole system, or to the part itself.

The means of removing the remote causes will readily occur, from considering the particular nature and circumstances of the different kinds. Acrid matters must be removed, or their action must be prevented by the application of demulcents. Compressing and overstretching powers must be taken away; and from their several circumstances, the means of doing so will be obvious.

The means of taking off the phlogistic diathesis of the system are the same with those already mentioned under the cure for synocha. The means of taking off the spasm also from the particular part, are much the same with those already mentioned. Only it is to be remembered, that topical bleedings, such as cupping with scarifications, applying leeches, &c. are in this case much more indicated; and that some of the other remedies are to be directed more particularly to the part affected, as shall be more fully considered when we treat of those diseases attended with particular inflammations.

When a tendency to suppuration is perceived, the proper indication is to promote the production of perfect pus as much as possible. For this purpose, various remedies, supposed to possess a specific power, have been proposed: but it does not appear that any of them are possessed of a virtue of this kind; and, in Dr. Cullen's opinion, all that can be done is to favour the suppuration by such applications as may support a moderate heat in the part, by some tenacity confine the perspiration, and by an emollient quality may weaken the cohesion of the teguments, and favour their erosion. As all abscesses are occasioned by the effusion of fluids, and as, in the case of certain effusions, a suppuration becomes not only unavoidable but desirable, it may be supposed that most of the means of procuring a resolution by diminishing the force of the circulation, &c. ought to be avoided. But as we observe on the one hand, that a certain degree of increased impetus, or of the original symptoms of inflammation, is necessary to produce a proper suppuration; so it is then especially necessary to avoid those means of resolution which may diminish too much the force of circulation. And on the other hand, as the impetus of the blood, when violent, is found to prevent the proper suppuration; so, in such cases, though a tendency to suppuration may have begun, it may be proper to continue those means of resolution which moderate the force of the circulation. The opening of abscesses when completely formed is the particular business of the surgeon; upon that subject therefore it is not necessary we should enlarge.

When an inflammation has taken a tendency to gangrene, that event is to be prevented by every possible means; and these must be different according to the nature of the several causes; but after a gangrene has in a great degree taken place, it can be cured only by the separation of the dead from the living parts. This in certain circumstances can be performed, and most properly, by the knife. In other cases it can be done by exciting a suppuratory inflammation on the verge of the living part, whereby its cohesion with the dead part may be every-where broken off, so that the latter may fall off by itself. While this is doing, it is proper to prevent the further putrefaction of the part, and its spreading wider. For this purpose, various antiseptic applications have been proposed: but Dr. Cullen is of opinion, that while the teguments are entire, these applications can hardly have any effect; and therefore, that the fundamental procedure must be to scarify the part so as to reach the living substance, and by the wounds made there, to excite the suppuration required. By the same incisions also we give access to antiseptics, which may both prevent the progress of the putrefaction in the dead, and excite the inflammation necessary in the living parts. The propriety of this, however, is doubtful. The other terminations of inflammation either do not admit of

any treatment except that of preventing them by resolution, or exclusively belong to *Surgery*.

Sp. II. PHLOGÖSIS ERYTHEMA.

- Erythema, *Sauv.* gen. 11.
- Erysipelas auctorum, *Vog.* 343.
- Hieropyr, *Vog.* 344.
- Anthrax, *Sauv.* gen. 19. *Lin.* 272. *Vog.* 353.
- Carbo et carbunculus auctorum.
- Erythema gangrænosum, *Sauv.* sp. 7.
- Erythema a frigore.
- Erythema pernio, *Sauv.* sp. 4.
- Pernio, *Lin.* 259. *Vog.* 350.
- Erythema ambustio, *Sauv.* sp. 2.
- Erysipelas ambustio, *Sauv.* sp. 4.
- Combustura, *Lin.* 245.
- Combustio, *Boerb.* 476.
- Euc us, *Vog.* 347.
- Erythema ab acri alieno applicato.
- Erysipelas Chinense, *Sauv.* sp. 7.
- Erythema ab acri inquilino.
- Erythema intertrigo, *Sauv.* sp. 5.
- Intertrigo, *Lin.* 247. *Vog.* 502.
- Erythema a compressione.
- Erythemā paratrima, *Sauv.* sp. 6.
- Erythema a punctura, *Sauv.* sp. 9.
- Erysipelas a vespis, *Sauv.* sp. 19.
- Ptydracia a vespis, *Sauv.* sp. 2.
- Erythema cum phlegmone.
- Erysipelas phlegmonodes auctorum.
- Erythema cum œdemate.
- Erysipelas symptomaticum, *Sauv.* sp. 6.

The word *erythema* doth not apply to any primary disease, but to a great number of those cutaneous inflammations denominated by another general term; *viz.* the *erysipelas*, or “St. Anthony’s fire;” and which being commonly symptomatic of some other inflammation or disorder, are to be removed only by removing the primary disease. The *erythema* is found scarcely to bear any kind of warm application to itself; and is very apt, if treated as a primary disease, to terminate in a gangrene of the part affected, or some other disorder still more dangerous. The difference between the *phlegmon* or preceding species, and *erythema*, according to Dr. Cullen, is, that, in the former, the inflammation seems particularly to affect the vessels on the internal surface of the skin

communicating with the lax adjacent cellular texture; whence a more copious effusion, and that too of serum convertible into pus, takes place. In the erythema, the affection is of the vessels on the external surface of the skin communicating with the *rete mucosum*, which does not admit of any effusion but what separates the cuticle and gives occasion to the formation of a blister, while the smaller size of the vessels admits only of the effusion of a thin fluid very seldom convertible into pus. For the cure of the fever attended with erythema, or *erysipelas*, see PHLEGMASIE, ORD. III. Genus xxvi. With regard to the external treatment little can be said, as the cases occur very seldom in which we should be justified in using any topical remedies whatever. Where the disease is situated on the head or face, cold or astringent applications are extremely dangerous and liable to occasion phrenitis. If any thing is to be attempted, it is to assuage the burning heat of the skin, by letting the patient hold his face over a vessel of hot water into which some camphor is thrown, so that the steam may be felt; or in case of a troublesome effusion of lymph from the skin, we may absorb it by applying occasionally a little starch powder.

Some have preferred bathing the part with aqua ammoniæ acetatæ alone. But in any case, these applications should be previously warmed, in a tea-cup placed in hot water; and the part should be covered immediately after their use. Greasy applications are to be wholly interdicted in all cases of erysipelas. These matters however belong to the department of Surgery.

GENUS VIII. OPHTHALMIA.

Inflammation of the Eyes.

Ophthalmia, *Sauv.* gen. 196. *Lin.* 43. *Vog.* 341. *Sag.* 231.

Junck. 23.

Chemosis, *Vog.* 46.

Ophthalmites, *Vog.* 47.

Inflammatiō oculorum, *Hoffm.* II. 165.

Ophthalmia taraxis, *Sauv.* sp. 1.

Ophthalmia humida, *Sauv.* sp. 8.

Ophthalmia chemosis, *Sauv.* sp. 12.

Ophthalmia erysipelatosa, *Sauv.* sp. 7.

Ophthalmia pustulosa, *Sauv.* sp. 6.

Ophthalmia phlyctænodes, *Sauv.* sp. 21.

Ophthalmia choroideæ, *Sauv.* sp. 13.

Ophthalmia tenebricosa, *Sauv.* sp. 10.

Ophthalmia trachoma, *Sauv.* sp. 4.

Ophthalmia sicca, *Sauv.* sp. 5.

Ophthalmia angularis, *Sauv.* sp. 14.

- Ophthalmia tuberculosa, *Sauv.* sp. 3.
- Ophthalmia trichiasis, *Sauv.* sp. 2.
- Ophthalmia canerosa, *Sauv.* sp. 15.
- Ophthalmia a synechia, *Sauv.* sp. 16.
- Ophthalmia a lagophthalmo, *Sauv.* sp. 17.
- Ophthalmia ab eclomate, *Sauv.* sp. 18.
- Ophthalmia ab ungue, *Sauv.* sp. 19.
- Ophthalmia corneæ fistula, *Sauv.* sp. 20.
- Ophthalmia uveæ, *Sauv.* sp. 22.
- Ophthalmia metastatica, *Sauv.* sp. 24.
- Ophthalmia scrophulosa, *Sauv.* sp. 9.
- Ophthalmia syphilitica, *Sauv.* sp. 11.
- Ophthalmia febricola, *Sauv.* sp. 23.

From reading this long list of distinctions which authors have invented in the ophthalmia, it is evident, that by far the greatest part of them are symptomatic, or merely the consequence of other disorders present in the habit: and therefore the remedies must be directed towards the removal of these primary disorders; and when they are gone, the ophthalmia will be removed of course. Dr. Cullen observes, that the inflammation of the eye may be considered as of two kinds; according as it is seated in the membranes of the ball of the eye, when it is named *ophthalmia membranarum*; or as it is seated in the sebaceous glands placed in the tarsus, or edge of the eyelids, in which case it may be termed *ophthalmia tarfi*. These two kinds are very frequently connected together, as the one may excite the other; but they are still to be distinguished according as the one or the other may happen to be the primary affection.

1. The inflammation of the *membranes* of the eye affects especially, and most frequently, the adnata, and appears in a turgescence of its vessels; so that the red vessels which are naturally there, become not only increased in size, but many more appear than in a natural state. This turgescence of the vessels is attended with pain, especially upon the motion of the ball of the eye; and this irritation, like every other, applied to the surface of the eye, produces an effusion of tears from the lacrymal gland.

The inflammation commonly, and chiefly, affects the adnata spread on the anterior part of the bulb of the eye; but usually spreads also along the the continuation of the adnata on the inside of the palpebræ; and as that is extended on the tarsus palpebrarum, the excretories of the sebaceous glands opening there are also frequently affected. When the affection of the adnata is considerable, it may be communicated to the subjacent membranes of the eye, and even to the retina itself; which thereby acquires so great sensibility, that every impression of light becomes painful. The inflammation of the membranes of the eye is in different degrees,

according as the adnata is more or less affected, or according as the inflammation is either of the adnata alone, or of the subjacent membranes also; and upon these differences, different species have been established; but they seem all to differ only in degree, and are to be cured by the same remedies more or less employed.

The proximate cause of ophthalmia is not different from that of inflammation in general; and the different circumstances of ophthalmia may be explained by the difference of its remote causes, and by the different parts of the eye which it happens to affect; as may be understood from what has been already said. We shall give an account of the method of cure in SURGERY, vol. II. to which it more properly belongs.

GENUS IX. PHRENITIS.

PHRENSY, or *Inflammation of the Brain.*

Phrenitis, *Sauv.* gen. 101. *Lin.* 25. *Sag.* gen. 301. *Boerb.* 771.
Hoffm. II. 131. *Junck.* 63.

Phrenismus, *Vog.* 45.

Cephalitis, *Sauv.* gen. 109. *Sag.* gen. 310.

Sphacelismus, *Lin.* 32.

Phrenitis vera, *Sauv.* sp. 1. *Boerb.* 771.

Phrenitis idiopathica, *Junck.* 63.

Cephalalgia inflammatoria, *Sauv.* sp. 9.

Cephalitis spontanea, *Sauv.* sp. 3.

Cephalitis siriasis, *Sauv.* sp. 4.

Siriasis, *Vog.* 34.

Cephalitis Littriana, *Sauv.* sp. 5.

Dr. Cullen observes, that the *true phrenitis*, or inflammation of membranes or substance of the brain, is very rare as an original disease: but, as a symptom of others, much more frequent; of which the following kinds are enumerated by different authors:

Phrenitis synochi pleuriticae, *Sauv.* sp. 2.

Phrenitis synochi sanguineae, *Sauv.* sp. 4.

Phrenitis calentura, *Sauv.* sp. 11.

Phrenitis Indica, *Sauv.* sp. 12.

Cephalitis Ægyptiaca, *Sauv.* sp. 1.

Cephalitis epidemica, anno 1510, *Sauv.* sp. 6.

Cephalitis verminosa, *Sauv.* sp. 7.

Cephalitis cerebelli, *Sauv.* sp. 8.

Phrenitis miliaris, *Sauv.* sp. 3.

1. Phrenitis variolosa, *Sauv.* sp. 5.

Phrenitis morbillosa, *Sauv.* sp. 6.

Phrenitis a plica, *Sauv.* sp. 8.

Phrenitis aphrodisiaca, *Sauv.* sp. 9.

Phrenitis a trantismo, *Sauv.* sp. 14.

Phrenitis hydrophobica, *Sauv.* sp. 15.

Phrenitis a dolore, *Sauv.* sp. 13.

Cephalitis traumatica, *Sauv.* sp. 2.

1. *Description.*] The signs of an impending phrenitis are, immoderate and continual watchings; or if any sleep be obtained, it is disturbed with dreams and gives no refreshment: acute and lasting pains, especially in the hind part of the head and neck; little thirst; a great and slow respiration, as if proceeding from the bottom of the breast; the pulse sometimes small and slow, sometimes quick and frequent; a suppression of urine; and forgetfulness. The disease when present may be known by the following signs: the veins of the head swell, and the temporal arteries throb much; the eyes are fixed, sparkle, and have a fierce aspect; the speech is incoherent, and the patient behaves very roughly to the by-standers, with furious attempts to get out of bed, not indeed continually, but returning as it were by paroxysms; the tongue is dry, rough, yellow or black; there is a coldness of the external parts; a proneness to anger; chattering of the teeth; a trembling of the hands, with which the patient seems to be gathering something, and actually does gather the nap off the bed-clothes.

2. *Causes of, and persons subject to, this disorder.*] People of a hot and bilious habit of body, and such as are of a passionate disposition, are apt to be affected with phrenitis. In the same danger are those who use much spice, or are given to hot and spirituous liquors; who have been exposed more than usual to the sun, or obliged to undergo immoderate studies or watchings; who are subject to head-achs, or in whom some customary hemorrhages have been stopped; or the disease may arise from some injury done to the head externally. Pringle observes, that the phrenitis, when considered as an original disease, is apt to attack soldiers in the summer season when they are exposed to the heat of the sun, and especially when asleep and in liquor. A symptomatic phrenitis is also more frequent in the army than elsewhere, on account of the violence done in all fevers when the sick are carried in waggons from the camp to an hospital, where the very noise or light alone would be sufficient, with more delicate persons, to raise a phrensy. From these and similar causes, a state of active inflammation, affecting some parts within the cranium, is produced: and there can be no doubt, that from this all the symptoms of the disease arise, and particularly that peculiar delirium which characterises it.

Dr. Moseley, in correspondence with his friend the late Dr. Charles Irwin, gives the following account of certain adventitious

causes of phrenitis in hot climates.—“He informed me,” says Dr. Moseley, “that, in the intermittent fevers (on the Spanish main), the *delirium*, which commonly came on in the paroxysm of the fever, after a few returns of it, sometimes remained during the intermissions, which soon became irregular, from reduplications of the accessions; and that several men wandered about in a *phrensy*, and died raving mad.

“Imbecility of mind, as well as of body, is a common consequence of long and obstinate disorders in hot climates; and I have frequently observed that the mind has been greatly impaired after irregular and harassing intermittents, and sometimes a temporary insanity has ensued. This must have been also observed by others; but as far as I know, no person, except Sydenham, who was the first that noticed it, has mentioned it as occurring in practice. He says, he has often found, when the patients had been extremely debilitated by long continuance of the disease, the doubling of the fits, and repeated evacuations, that they have been seized with a madness, when they began to recover, which went off proportionably as they gathered strength: but that sometimes, from injudicious evacuations only, it has degenerated into a miserable kind of folly for life. *Post evacuationes fortiores adhibitæ, in miseram quandam stultitiam degenerans, non nisi cum ipsa æquum vita terminatur.*

“But,” continues the author, “there is another cause of these disorders of the brain in the West Indies, which neither injudicious evacuations, nor climate, nor the nature of the disease, are in the least accessory in producing, though generally attributed to them. This cause is the *Peruvian bark*.

“In a letter I received from Doctor Irving, while he was at Blue-fields, he says, ‘From neglect of your perspiratory practice, or from being destitute of proper necessaries, I am convinced many have been lost on this expedition. Nature wanted vigour to discharge the incipient fevers by the pores, which should have been supported by warm clothing and sudorific practice, &c. But by trusting wholly to bark, an early coma came on, and a paralysis of the limbs, and soon after, death. I have seen a multitude die at St. Juan’s without a point of variety from this stated.’

“He found that the stomach required the utmost attention: for the energy of that organ giving way, was seldom restored. That nothing was so grateful as *London bottled porter*. Wine was neither so much desired, by the sick, nor so serviceable in corroborating, and keeping up the powers of the stomach; which, like the rest of the body, from the slightest indisposition, was soon reduced to an uncommon state of debility. With *London bottled porter*, and strong infusions of snake root, or cinnamon, and a discreet use of diaphoretics, and a cautious use of bark, he conquered many of those intermittents, which from incautious evacu-

ations, and emetic tartar, would have degenerated into fluxes, and remittents, and from an excessive and untimely use of bark, into other diseases, which art could not have remedied.

“*Bark*, in unskilful hands, is a precarious remedy even in intermittents in the West Indies, and should never be long persisted in, without evidently good effects: and then not without the frequent intervention of calomel.”

In what manner local diseases, even of the brain itself, produce affections of the mind, we are still totally in the dark.

3. *Prognosis.*] Every kind of phrenitis, whether idiopathic or symptomatic, is attended with a high degree of danger: and, unless removed before the fourth day, a gangrene or sphacelus of the meninges readily take place, and the patient dies delirious. The following are the most fatal symptoms: a continual and furious delirium, with watching; thin watery urine, white faeces, the urine and stools running off involuntarily, or a total suppression of these excretions; a ready disposition to become stupid, or to faint; trembling, rigor, chattering of the teeth, convulsions, hic-cough, coldness of the extremities, trembling of the tongue, shrill voice, a sudden cessation of pain, with apparent tranquillity. The following are favourable: sweats, apparently critical, breaking out; a seeming effort of nature to terminate the disease by a diarrhoea; a large hemorrhagy from the nose; swellings of the glands behind the ears; hæmorrhoids.

4. *Cure.*] From what has been said of the theory of this disease, the cure must entirely depend on obtaining a resolution of the inflammation. The objects chiefly to be aimed at with this view, are, 1. The removal of such exciting causes as continue to operate. 2. The diminution of the momentum of the blood in the circulating system in general. 3. The diminution of impetus at the brain in particular: and, 4. The avoiding circumstances, which tend either to accelerate the motion of the blood, or to give determination to the head.

Different modes may be used with these intentions; but here the most powerful remedies are to be immediately employed. Large and repeated bleedings are especially necessary; and these too taken from vessels as near as possible to the part affected. The opening the temporal artery has been recommended, and with some reason: but as the practice is attended with some inconveniences, perhaps the opening of the jugular veins may prove more effectual; with which, however, may be joined the drawing of blood from the temples and nape of the neck, by cupping and scarifying. It is also probable, that purging by drastic substances may be of more use in this than in other inflammatory affections, as it may operate by revulsion. For the same purpose also, warm pediluvia are a suitable remedy. The taking off the force of the blood in the vessels of the head by an erect posture is also generally useful.

Blistering is also useful, but chiefly when applied to the scalp. In short, every part of the antiphlogistic regimen is here necessary, and particularly the admission of cold air. Even cold substances applied to the head have been found useful; and the application of such refrigerants as vinegar is certainly proper. Opiates are thought to be hurtful in every inflammatory state of the brain. On the whole, however, it must be remarked, that practitioners are very uncertain with regard to the means proper to be used in this disease; and the more so, as the symptoms by which the disease is commonly judged to be present, appear sometimes without any internal inflammation; and, on the other hand, dissections have shewn, that the brain has been inflamed, where few of the peculiar symptoms of inflammation had appeared before.

Dr. Fordyce makes the following remarks on the prevention and cure of this disease.

It is prevented by avoiding or counteracting the causes.

For the cure, the most powerful means of *resolution* are immediately to be employed.

Fiat V. S. e brachio ad ℥^{xij}. xx. vel xxx. pro diathesi inflammatoria, aut corporis viribus, et repetatur pro re nata.

After the strength of the system, or general inflammation, are diminished,

Fiat venæsectio e vena jugulare, vel arteria temporale; vel temporibus applicentur hirudines;

At the same time evacuations from the intestines may likewise be performed with advantage.

(No. 58.) ℞ Infus. Sen. ℥j℥. ad ℥ij.

Sal. Glaub. ver. ℥℥. ad ℥i℥.

Vel, Tart. Solub. ℥℥. ad ℥vj.

Vel, Polychrest. Rupel. ℥ss. ad ℥j.

Mannæ ℥iij.

Tinc. Senn. ℥ij.

M. Ft. Haust. purgans. Capt. post V. S. et repet. pro re nata.

When the purgative is not operating, (No. 21.) or (No. 27.) may be given, but are not to be depended on.

After having diminished the strength of the vessels,

Applicet. Emplast. Epispast. capiti rasō.

The food, throughout the disease, is to consist only of decoctions of farinaceous feeds in water, acidulated.

It is farther to be observed, that when an inflammation arises at the beginning of a fever, and it, as well as the general inflammation, continues, such fever is also to be attended to in the cure of the inflammation, and the treatment varied according to the violence of them.

GENUS X. CYNANCHE.

Cynanche, *Sauv.* gen. 110. *Lin.* 33. *Sag.* gen. 300.

Angina, *Vog.* 49. *Hoffm.* II. 125. *Junck.* 30.

Angina inflammatoria, *Boerb.* 798.

Sp. I. CYNANCHE TONSILLARIS.

The Inflammatory QUINSY.

Cynanche tonsillaris, *Sauv.* sp. 1.

Anginæ inflammatoriæ, sp. 5. *Boerb.* 805.

1. *Description.*] This is an inflammation of the mucous membrane of the fauces, affecting principally that congeries of mucous follicles which forms the tonsils; and from thence spreading along the velum and uvula, so as frequently to affect every part of the mucous membrane. The disease appears by some tumor and redness of the parts; is attended with a painful and difficult deglutition; a troublesome clamminess of the mouth and throat; a frequent but difficult excretion of mucus; and the whole is accompanied with pyrexia. The inflammation and tumor are commonly at first most considerable in one tonsil; and afterwards, abating in that, increase in the other. This disease is not contagious.

2. *Causes of, and persons subject to, this disorder.*] The quinsy is commonly occasioned by cold externally applied, particularly about the neck. It affects especially the young and sanguine; and a disposition to it is often acquired by habit. It occurs especially in the spring and autumn, when vicissitudes of heat and cold frequently take place.

3. *Prognosis.*] This species of quinsy terminates frequently by resolution, sometimes by suppuration, but hardly ever by gangrene; though in some places sloughy spots appear on the fauces: the prognosis, therefore, is generally favourable.

4. *Cure.*] As the principal morbid affection in this disease, on which all its characterising symptoms immediately depend, is the active inflammation in the tonsils and neighbouring parts, the object first and principally to be aimed at in the cure, is to obtain a resolution of this inflammation. Sometimes, however, it is necessary to have recourse to remedies, with the view of obviating urgent symptoms before a resolution can be effected; and in other cases, where a resolution cannot be obtained, it must be the aim of the practitioner to promote a speedy and favourable suppuration. After suppuration has taken place, the proper means of promoting

a discharge of the purulent matter will conclude the cure ; and to effect this, nothing is so beneficial as fumigating the throat frequently, by means of a funnel placed over a vessel of boiling water, into which some camphor, grossly powdered, is thrown. While there is a chance of preventing the formation of pus, some local bleeding may be necessary ; and also large and general evacuations from the arm are beneficial. The opening of the ranular veins is held to be an insignificant remedy, according to Dr. Cullen ; but it is recommended as an efficacious one by Sir John Pringle ; more benefit, however, may in general be derived from leeches to the external fauces. The inflammation may be often relieved by moderate astringents, and particularly by acids applied to the parts affected. Dr. Saunders directs the following gargle to be used, but not too frequently :

(No. 59.) ℞ Acidi muriat. gutt. xxx.

Mellis rosæ ℥ij.

Decocti hordei ℥vj. Misce.

Besides these, blistering, and still more frequently rubefacient medicines, are applied with success, as well as the antiphlogistic purgatives, No. 3, 4, and 81 ; and every part of the antiphlogistic regimen is to be observed, except the application of cold. Sir John Pringle recommends a thick piece of flannel moistened with the following :

(No. 60.) ℞ Ol. olivæ ℥ij.

Spiritus Cornu cervi ℥j.

Misce fiat Linimentum.

To be applied to the throat, and renewed once every four or five hours. The following, recommended by Mr. Cruikshank, is still more effectual :

(No. 61.) ℞ Camphoræ drach. ij.

Olei olivæ unc. j.

Aquæ ammoniæ puræ unc. iij.

The camphor is to be dissolved in the oil, and then added to the water of pure ammonia.

Or the following from Dr. Fordyce may be resorted to :

(No. 62.) ℞ Ol. olivæ ℥j.

Alkal. Volat. Caust. ℥ij ad ℥j.

Camph. gr. xxx.

M. Fiat Liniment. inung. fauces externe sæpius.

These means, employed after bleeding, either carry off or at least lessen the inflammation. When the disease has a tendency to suppuration, nothing will be more useful than the taking into the fauces the steams of camphor and warm water, as mentioned above. Benefit is also obtained from poultices applied to the external fauces.

Dr. Fordyce directs, in this disease,

(No. 63.) R Flor. Cham. vel Summit. Absynth. vel
Summit. Centaur. Minor. Manip. ij.
Rad. Bryon. Alb. recent. ℥j.
Folior. Malv. vel Alth. Man. j. contunde et leviter
coque in
Aq. Font. ℔ iiij.

Celatura utatur pro Fotu ter indies.
Adde Herbis Coctis,
Unguent. Simp. ℥ij.

Fiat Cataplasma part. affect. applicandum.

He observes also, that the inflammation may sometimes be diminished, by augmenting the secretion from the mucous glands of the mouth and throat; and that we are to endeavour to prevent the mucous membrane from being affected by the salts of the thick mucus.

(No. 64.) R Aq. Cinnam. Ten. ℥viiij.
Oxymel. Scillit. ℥℔.
M. Ft. Gargarisma. Utatur sæpius.

(No. 65.) R Syr. ex Althæa }
Ol. Amygdalæ } a a ℥j.
Conserv. Cynob. ℥℔.

M. Ft. Linctus. Capt. Coch. unum parvum frequenter.

If the inflamed parts suppurate, the mouth and throat are to be kept moist with

(No. 66.) R Infus. Sem. Lini ℔j.
Sacch. Alb. ℥j.
Succ. Aur. Hisp. ℥℔.

If no fluid can be gotten into the stomach, the blood vessels may be supplied in some measure by clysters.

(No. 67.) R Aq. Font. ℥vj.
Amyl. Alb. ℥iiij. Solve, et adde
Sacchari ℥ss.

Fiat Enema quartâ quâque horâ injicienda.

Dr. Temple directs the cure to be attempted in the following way: for the removal of the inflammatory tonsillary sore throat, the general antiphlogistic regimen will be necessary, except bleeding: leeches and blisters are to be applied to the external fauces; a purge or two must be given in the beginning, in which stage of the disease full vomiting is often of essential service, and acid and astringent gargles must be used.

(No. 68.) R Decoct. cinchonæ, Vel,
Decoct. cort. querc. ℥vj.
Mel. rosæ ℥j.
Acid. vitr. dil. ℥jss. m. f. gargarisma.
Vel,

(No. 69.) \mathcal{R} Infus. ros. \mathfrak{h} ss.

Alum. \mathfrak{z} ij.

Mell. rosæ \mathfrak{z} j. m. f. gargarisma:

Vel,

(No. 70.) \mathcal{R} Aq. ammoniæ acetat. \mathfrak{z} vj. pro gargarisma:

Vel,

(No. 71.) \mathcal{R} Linim. ammoniæ \mathfrak{z} j. faucibus externis applic.

Vel,

(No. 72.) \mathcal{R} Emp. cantharidis faucibus externis applicandum.

He says the steam of water and vinegar should be inhaled from a tea-pot, or proper apparatus.

If suppuration is likely to take place, the patient should frequently inhale the steam of warm water; and if in that stage the swelling of the tonsils should be so great as to endanger suffocation, or prevent deglutition, they should be scarified, or they may be made to break by exciting vomiting.

In case the swelling of the tonsils, fauces, and tongue, should be so great as to endanger immediate suffocation, and at the same time render it impossible to get at the tonsils to scarify them, and if also the power of deglutition is destroyed, so that no medicine can be got down to excite vomiting, and by that means burst the tonsils, the patient may be snatched from instant death by inhaling æther from an inhaler, into which put water that nearly boils, and add to it a drachm of æther: the inhaler is to be instantly covered, and the patient must inhale the vapour as soon as possible. The stimulus will be so great, that it will excite an action and contraction in the parts sufficient to break the tonsils, which of course will give instantaneous relief.

This, however, it will be readily understood, can only succeed when suppuration has taken place in the tonsils, but it is in this state only that the patient is likely to be in such immediate danger. If this, however, does not succeed, bronchotomy must be had recourse to.

Dr. Temple advises, after the abscess has broke, that a gentle cathartic should be given, and points out the treatment where a gangrene is threatened.

When the abscess is attended with much swelling, if it break not spontaneously, it ought to be opened by a lancet; and this does not require much caution, as even the inflammatory state may be relieved by some scarification of the tonsils. When this disease runs very rapidly to such a height as to threaten suffocation, it is sometimes necessary to have recourse to bronchotomy as the only mean of saving the life of the patient. But there is reason to believe that this operation has sometimes been employed where it was unnecessary: and we may safely venture to say, that it is but seldom requisite; inasmuch that Dr. Cullen tells us, he has never in his practice seen any case requiring bronchotomy.

Sp. II. CYNANCHE MALIGNA.

The malignant, putrid, or ulcerous Sore Throat.

Cynanche maligna, *Sauv.* sp. 3.

Cynanche ulcerosa, *Sauv.* var. a. Journ. de Med. 1758.

Cynanche gangrænosa, *Sauv.* var. b. Journ. de Med. 1756.

Ulcera faucium et gutturis anginosa et lethalia, Hispanis *Garotillo*, *Lud. Mercat.* consult. 24.

Angina ulcerosa, *Fothergill's* Account of the ulcerous sore throat, edit. 1751. *Huxham* on the malignant ulcerous sore throat, from 1751 to 1753.

Febris epidemica cum angina ulcusculosa, *Douglas's* Practical History, Boston, 1736.

Angina epidemica, *Ruffel*, *Oecon. Natur.* p. 105.

Angina gangrænosa, *Withering's* Differt. Inaug. Edinb. 1766.

Angina suffocativa, *Bard's* Inquiry, New-York, 1771.

Angina maligna, *Johnstone* on malignant Angina, Worcester, 1779.

1. *History and description.*] This disease is not particularly described by the ancient physicians; though perhaps the Syrian and Egyptian ulcers, mentioned by Aretæus Cappadox, and the pestilent ulcerated tonsils we read of in Aetius Amideus, were of this nature. Some of the scarlet fevers mentioned by Morton, seem also to have approached near to it. In the beginning of the last century, a disease, exactly similar to this, is described by the physicians of that time as raging with great violence and mortality in Spain, and some part of Italy; but no account of it was published in this country till the year 1748, when a very acute one was drawn up by Dr. Fothergill, and in 1752 by Dr. Huxham. The latter observes, that this disease was preceded by long, cold, and wet seasons; by which probably the bodies of people were debilitated, and more apt to receive contagion, which possibly also might be produced by the stagnant and putrid waters.

The attack of this disease was very different in different persons. Sometimes a rigor, with fulness and soreness of the throat, and painful stiffness of the neck, were the first symptoms complained of. Sometimes alternate chills and heats, with some degree of giddiness, drowsiness, or head-ach, ushered in the disease. It seized others with much more feverish symptoms; great pain of the head, back, and limbs; a vast oppression of the præcordia, and continual sighing. Some grown persons went about for some days in a drooping state, with much uneasiness and anxiety, till at last they were obliged to take to their beds. Thus various was the disease, says Dr. Huxham, at the onset. But it commonly be-

gan with chills and heats, load and pain of the head, soreness of throat, and hoarseness; some cough, sickness at stomach, frequent vomiting and purging, in children especially, which were sometimes very severe; though a contrary state was more common to the adult. There was in all a very great dejection of spirits, very sudden weakness, great heaviness on the breast, and faintness, from the very beginning. The pulse in general was quick, small, and fluttering, though sometimes heavy and undulating. The urine was commonly pale, thin, and crude; however, in many grown persons, it was in small quantities and high-coloured, or like turbid whey. The eyes were heavy, reddish, and as it were weeping; the countenance very often full, flushed, and bloated, though sometimes pale, and sunk.

How slight soever the disorder might appear in the day-time, at night the symptoms became greatly aggravated, and the feverish habit very much increased, nay, sometimes a delirium occurred on the very first night; and this exacerbation constantly returned through the whole course of the disease. Indeed, when it was considerably on the decline, our author says he has been often pretty much surpris'd to find his patient had pass'd the whole night in a phrensy, whom he had left tolerably cool and sedate in the day.

Some few hours after the seizure, and sometimes cotemporary with it, a swelling and soreness of the throat was perceived, and the tonsils became very tumid and inflamed, and many times the parotid and maxillary glands swelled very much, and very suddenly, even at the very beginning; sometimes so much as even to threaten strangulation. The fauces also very soon appeared of a high florid red, or rather of a bright crimson colour, very shining and glossy; and most commonly on the uvula, tonsils, velum palatinum, and back part of the pharynx, several whitish or ash-coloured spots appeared scattered up and down, which oftentimes increased very fast, and soon covered one or both the tonsils, uvula, &c. those in the event proved sloughs of superficial ulcers (which sometimes, however, eat very deep into the parts). The tongue at this time, though only white and moist at the top, was very foul at the root, and covered with a thick yellowish, or brown coat. The breath also now began to be very nauseous; which offensive smell increased hourly, and in some became at length intolerable, and that too sometimes even to the patients themselves.

The second or third day every symptom became much more aggravated, and the fever much more considerable; and those that had struggled with it tolerably well for thirty or forty hours, were forced to submit. The restlessness and anxiety greatly increased, as well as the difficulty in swallowing. The head was very giddy, pained, and loaded; there was generally more or less of a deli-

rium; sometimes a perrigilium and perpetual phrensy, though others lay very stupid, but often starting and muttering to themselves. The skin was very hot, dry, and rough; there was very rarely any disposition to sweat. The urine was pale, thin, crude; often yellowish and turbid. Sometimes a vomiting was urgent, and sometimes a very great looseness, in children particularly, The fluxes were now much enlarged, and of a darker colour, and the surrounding parts tended much more to a livid hue. The breathing became much more difficult; with a kind of rattling stertor, as if the patient was actually strangling, the voice being exceeding hoarse and hollow, exactly resembling that from venereal ulcers in the fauces: this sound in speaking and breathing was so peculiar, that any person in the least conversant with the disease, might easily know it by this odd noise; from whence, indeed, the Spanish physicians gave it the name of *garotillo*, expressing the noise made by persons when they are strangling with a rope. Our author never observed in one of them the shrill barking noise that we frequently hear in inflammatory quintics. The breath of all the diseased was very nauseous; of some insufferably fetid, especially in the advance of the disorder to a crisis; and many, about the fourth or fifth day, spit off a vast quantity of stinking purulent mucus, tinged sometimes with blood; and sometimes the matter was quite livid, and of an abominable smell. The nostrils, likewise, in many were greatly inflamed and excoriated, continually dripping down a most sharp ichor or sanious matter, so excessively acrid, that it not only corroded the lips, cheeks, and hands of the children that laboured under the disease, but even the fingers and arms of the very nurses that attended them: as this ulceration of the nostrils came on, it commonly caused an almost incessant sneezing in the children; but few adults were affected with it, at least to any considerable degree. It was surprising what quantities of matter some children discharged this way, which they would often rub on their face, hands, and arms, and blister them all over. A sudden stoppage of this rheum from the mouth and nostrils actually choked several children; and some swallowed such quantities of it, as occasioned excoriations of the intestines, violent gripings, dysentery, &c. nay, even excoriations of the anus and buttocks. Not only the nostrils, fauce, &c. were greatly affected by this extremely sharp matter, but the wind-pipe itself was sometimes much corroded by it, and pieces of its internal membrane were spit up, with much blood and corruption; and the patients lingered on for a considerable time, and at length died tabid; though there were more frequent instances of its falling suddenly and violently on the lungs, and killing in a peripneumonic manner.

Dr. Huxham was astonished sometimes to see several swallow with tolerable ease, though the tumor of the tonsils and throat,

the quantity of thick mucus, and the rattling noise in breathing, were very terrible; which he thinks pretty clearly shews, that this malignant quinsy was more from the acrimony and abundance of the humors than the violence of the inflammation.

Most commonly the angina came on before the exanthemata; but many times the cuticular eruption appeared before the sore throat, and was sometimes very considerable, though there was little or no pain in the fauces: on the contrary, a very severe angina seized some patients that had no manner of eruption; and yet, even in these cases, a very great itching and desquamation of the skin sometimes ensued; but this was chiefly in grown persons, very rarely in children. In general, however, a very considerable efflorescence broke out on the surface of the body, particularly in children; and it most commonly happened the second, third, or fourth day: sometimes it was partial, sometimes it covered almost the whole body, though very seldom the face: sometimes it was of an erysipelatous kind; sometimes more pustular: the pustules frequently eminent, and of a deep fiery red colour, particularly on the breast and arms: but oftentimes they were very small, and might be better felt than seen, and gave a very odd kind of roughness to the skin. The colour of the efflorescence was commonly of a crimson hue, or as if the skin had been smeared over with juice of raspberries, and this even to the fingers ends; and the skin appeared inflamed and swollen, as it were; the arms, hands, and fingers, were evidently so, and very stiff, and somewhat painful. This crimson colour of the skin seemed indeed peculiar to this disease. Though the eruption seldom failed of giving some manifest relief to the patient, as to anxiety, sickness at stomach, vomiting, purging, &c.; yet there was observed an universal fiery eruption on some persons, without the least abatement of the symptoms, nay almost every symptom seemed more aggravated, particularly the fever, load at breast, anxiety, and delirium; and our author knew more than one or two patients die in the most raging phrensy, covered with the most universally fiery rash he ever saw; so that, as in the highest confluent small-pox, it seemed only to denote the quantity of the disease, as he terms it.

He had under his care a young gentleman, about twelve years of age, whose tongue, fauces, and tonsils, were as black as ink, and he swallowed with extreme difficulty; he continually spit off immense quantities of a black, sanious, and very fetid matter, for at least eight or ten days:—about the seventh day, his fever being somewhat abated, he fell into a bloody dysentery, though the bloody, sanious, fetid expectoration still continued, with a most violent cough. He at length, indeed, got over it, to the very great surprise of every one that saw him. Now, in this patient, a severe and universal rash broke out upon the second and third day; and the itching of his skin was so intolerable, that he tore

it all over his body in a most shocking manner: yet this very great and timely eruption very little relieved his fever and phrensy, or prevented the other dreadful symptoms mentioned.

An early and kindly eruption, however, was most commonly a very good omen; and, when succeeded by a very copious desquamation of the cuticle, one of the most favourable symptoms that occurred; but when the eruption turned of a dusky or livid colour, or prematurely or suddenly receded, every symptom grew worse, and the utmost danger impended, especially if purple or black spots appeared up and down, as sometimes happened; the urine grew limpid, and convulsions came on, or a fatal suffocation soon closed the tragedy.

The disease was generally at the height about the fifth or sixth day in young persons, in the elder not so soon; and the crisis many times was not till the eleventh or twelfth, and then very imperfect: some adults, however, were carried off in two or three days; the distemper either falling on the lungs, and killing in a peripneumonic manner; or on the brain, and the patient either died raving or comatose. In some, the disease brought on a very troublesome cough, purulent expectoration, hæmoptœ, and hectic; in which they lingered on for several weeks, and then died tabid.

If a gentle easy sweat came on the third or fourth day; if the pulse became more slow, firm, and equal; if the sloughs of the fauces cast off in a kindly manner, and appeared at the bottom tolerably clean and florid; if the breathing was more soft and free, and some degree of vigour and quickness returned in the eyes; all was well, and a salutary crisis followed soon by a continuance of the sweat, and a turbid, subsiding, farinaceous urine, a plentiful expectoration, and a very large desquamation of the cuticle. But if a rigor came on, and the exanthemata suddenly disappeared or turned livid; if the pulse grew very small and quick, and the skin remained hot and parched as it were, the breathing more difficult, the eyes dead and glassy, the urine pale and limpid, a phrensy or coma succeeded, with a coldish clammy sweat on the face or extremities, life was despaired of; especially if a singultus and choaking or gulping in the throat attended, with sudden, liquid, involuntary, livid stools, intolerably fetid. In some few patients Dr. Huxham observed, some time before the fatal period, not only the face bloated, fallow, shining, and greasy as it were, but the whole neck very much swollen, and of a cadaverous look; and even the whole body became in some degree œdematous; and the impression of a finger would remain fixed in a part, the skin not rising again as usual; an indication that the blood stagnated in the capillaries, and that the elasticity of the fibres was quite lost.

Medical writers are still much divided in opinion, whether the cynanche maligna is to be considered as the same disease with the

scarlatina anginosa, afterwards to be treated of, or not. This question will afterwards come to be more fully discussed. At present we shall only observe, that although ulcerous sore throats of a malignant nature often appear sporadically, yet that the disease above described appears only as an epidemic, and is always the consequence of contagion.

2. *Prognosis.*] This may be easily gathered from the above description. The malignant and putrid tendency of the disease is evident, and an increase of the symptoms which arise from that putrescent disposition of the body must give an unfavourable prognosis; as, on the contrary, a decrease of these, and an apparent increase of the *vis vitæ* are favourable. In general, what is observed to be favourable in the nervous and putrid malignant fevers, is also favourable in this, and *vice versa*.

3. *Causes.*] Since the accurate accounts given by Drs. Fothergill and Huxham of the epidemics which prevailed about fifty years ago, this disease has frequently been observed at times epidemic in almost every different part of Britain. Like small-pox, measles, and chin-cough, it seems in every case to be the effect of a peculiar and specific contagion. It has been observed to prevail equally generally in every situation, and at every season; and on exposure to the contagion, no age, sex, or condition, is exempted from it. But the having once had the disease, seems in this affection to afford the same security against future contagion as in the small-pox: at least instances, where it can be said that the same individual has been twice affected with it, are both very rare and very doubtful, as well as in small-pox.

4. *Cure.*] Like other febrile contagions, the malignant ulcerous sore throat is terminated only by a natural course; and the chief business of the practitioner is to combat unfavourable occurrences. In this the septic tendency of the disease is chiefly to be kept in view. The debility with which it is attended renders all evacuations by bleeding and purging improper, except in a few instances on the first attack, where the debility is less, and the inflammatory symptoms more considerable. The fauces are to be preserved from the effects of the acrid matter poured out upon them, and are therefore frequently to be washed out by gargles of sage tea and vinegar, or by the following, used at St. George's Hospital:

(No. 73.) ℞ Mellis acetati ʒij.

Aquæ hordei ʒx.

Misce. Fiat Gargarisma.

Or the following from the Pharmacopœia of St. Thomas's:

(No. 74.) ℞ Tincturæ rosæ ʒviij.

Mellis rosæ . . . Misce.

(No. 75.) ℞ Gargarismatis communis ʒiij.

Aluminis ʒiiss. Misce.

(No. 76.) ℞ Mucilaginis feminis cydon. ℥viij.

Mellis rosæ ℥j.

Boracis pulverati ℥ij. Misce.

Dr. Saunders recommends the following detergent remedies to procure a separation of the sloughs from the fauces :

(No. 77.) ℞ Decoct. cinchonæ ℥vj.

Acidi vitriol. dilut. ℥j.

Mellis rosæ ℥j.

Misce. Fiat Gargarisma quocum os et fauces sæpè de die colluantur.

(No. 78.) ℞ Oxymel. Æuginis ℥iss.

Mellis rosæ ℥ij.

Decocti hordei ℥iiiss.

Misce, et utatur pro Gargarismate.

This disease, Dr. Saunders observes, should be distinguished from the inflammatory angina, and from a particular species of epidemic sore throat, which has lately appeared in this country, attended with much pain and difficult deglutition, violent head-ach with inflamed eyes, sometimes an universal redness and eruption on the skin.

A diaphoresis, the doctor observes, may be brought on by the following :

(No. 79.) ℞ Aquæ ammon. acet. ℥ij.

Vini antim. tart. ℥j.

Mist. camphorat. ℥iv. Misce.

Sumat cochlearia iij. sexta quaque hora.

Sometimes a diarrhœa occurs in this disease. It may be moderated by,

(No. 80.) ℞ Kino in pulv. trit. ℥j.

Pulv. cretæ comp. cum Opio gr. x.

Misce. Fiat pulvis, vel syrupum zingiberis addendo, bolus, ad alvum contrahendum mane sumendus.

The putrescent state of the whole system should be guarded against and corrected by internal antiseptics, especially by the Peruvian bark given in the beginning and continued through the course of the disease. For this purpose No. 36 or 37 may be administered, or the *Hauslus Cinchonæ* of St. George's Hospital.

(No. 81.) ℞ Decocti cinchonæ ℥iss.

Tincturæ cinchonæ ℥iss. Misce.

Great benefit is also often derived from the liberal use of the mineral acids which may be joined with the draught. Both the vitriolic and muriatic, in a state of proper dilution, have been highly extolled by different medical writers, and are productive of the best effects in actual practice, when they can be introduced to a sufficient extent. On the first attack the emetics (No. 1.) or (No. 2.) both by vomiting and nauseating, may prove useful. When any considerable tumor occurs, blisters applied externally

to the throat will be of service, and in any case may be proper to moderate the inflammation.

Very lately, the internal use of the *capsicum annuum*, or Cayenne pepper, as it is commonly called, has been highly celebrated in this affection; and it is particularly said to have been employed with singular success in the West Indies.

Sp. III. CYNANCHE TRACHEALIS.

The Croup.

Cynanche trachealis, *Sauv.* sp. 5.

Cynanche laryngea auctorum, *Eller de cogn. et curand. morb. sect. 7.*

Anginæ inflammatoriæ, sp. 1. *Boerb.* 801.

Angina latens et difficilis, *Dodon. obs.* 18.

Angina interna, *Tulp. l. 1. obs.* 51.

Angina perniciofa, *Greg. Horst. Obs. l. iii. obs.* 1.

Suffocatio stridula, *Home on the Croup.*

Asthma infantum, *Millar on the Asthma and Chincough.*

Asthma infantum spasmodicum, *Rush, Dissertation, Lond.* 1770.

Cynanche stridula, *Crawford Dissert. Inaug. Edin.* 1771.

Angina epidemica anno 1743. *Molloy apud Rutt's History of the weather.*

Morbus strangulatorius, *Starr, Phil. Transf. No. 495.* *Morbus truculentus infantum*, *Francof. ad Viadrum et in vicinia grassans, anno 1758. C. a Bergen. A nova. N. C. tom. ii. p. 1. 57.*

Catarrhus suffocativus Barbadosis ann. 1758. *Hillary's Diseases of Barbadoes.*

Angina inflammatoria infantum, *Russel Oecon. nat. p. 70.*

Angina polyposa sive membranacea Michealis. *Argentorati 1778, et auctores ab eo allegati.*

1. *Description.*] The best description of this disease we have in Dr. Cullen's Practice of Physic. He informs us, that it consists of an inflammation of the glottis, larynx, or upper part of the trachea, whether it affect the membranes of these parts or the muscles adjoining. It may arise first in these parts, and continue to subsist in them alone; or it may come to affect these parts from the cynanche tonsillaris, or maligna, spreading into them.

Of late years it has been far from a rare occurrence, and many instances of it have been marked and recorded by physicians; though its true nature, and proper mode of treatment, are still subjects of controversy among them; some contending, that there exist two distinct species of the disease, the *inflammatory* and the

spasmodic, while others consider spasm rather as an adventitious symptom. We shall presently collect, from the different fugitive publications on the subject, all that modern practice has supplied.

The croup is known by a peculiar croaking sound of the voice, by difficult respiration, with a sense of straitening about the larynx, and by a pyrexia attending it.

From the nature of these symptoms, and from the dissection of the bodies of persons who died of this disease, there is no doubt of its being of an inflammatory kind, whatever symptoms may be superadded. It does not, indeed, always run the course of inflammatory affections; but frequently produces such an obstruction of the passage of the air, as suffocates, and thereby proves suddenly fatal.

It particularly proves fatal, in consequence of the trachea being obstructed by a membranous substance lining the inside of it, and very nearly approaching in appearance to the inflammatory exudation often discovered on the intestinal canal in those dying of enteritis.

If we judge rightly of the nature of this disease, it will be obvious, that the cure of it requires the most powerful remedies of inflammation to be employed upon the very first appearance of the symptoms. When a suffocation is threatened, whether any remedies can be employed to prevent it, is not yet determined by sufficient experience: but it is evident, that in certain cases the life of the patient can be preserved only by the removal of that matter which forms a mechanical obstruction to the passage of air through the trachea.

The accounts which books have hitherto given us of inflammations of the larynx, and the parts connected with it, amount to what we have now said; and many instances are recorded of the disease happening in adult persons: but there is a peculiar affection of this kind happening to infants, which has been little taken notice of till of late years. Dr. Home is the first who gave any distinct account of the croup. He has not, however, stated a material circumstance on which some late writers insist, as will be presently seen, namely, that this disease is infectious.

The croup seldom attacks infants till after they have been weaned. After this period, the younger they are, the more they are liable to the disease: The frequency of it becomes less as children become more advanced; and there are few instances of children above twelve years of age being affected with it. It attacks children of the midland counties, as well as those who live near the sea; but it occurs much more frequently at certain places than at others. It does not appear to be contagious; and its attacks are frequently repeated on the same child. It is often manifestly the effect of cold applied to the body; and, therefore, appears most frequently in the winter and spring seasons. It very

commonly comes on with the ordinary symptoms of a catarrh; but sometimes the peculiar symptoms of the disease show themselves at the very first.

These peculiar symptoms are the following: a hoarseness, with some shrillness and ringing sound, both in speaking and coughing, as if the noise came from a brazen tube. At the same time, there is a sense of pain about the larynx, some difficulty of respiration, with a whizzing sound in inspiration, as if the passage of the air were straitened. The cough which attends it is commonly dry; and if any thing be spit up, it is a matter of a purulent appearance, and sometimes films resembling portions of a membrane. With all these symptoms, there is a frequency of pulse, a restlessness, and an uneasy sense of heat. When the internal fauces are viewed, they are sometimes without any appearance of inflammation; but frequently a redness, or even swelling, appears; and sometimes there is an appearance of matter, like to that rejected by coughing, together with the symptoms now described, and particularly with great difficulty of breathing, and a sense of strangling in the fauces, by which the patient is sometimes suddenly taken off.

Many dissections have been made of infants who had died of this disease, and almost constantly there has appeared a preternatural substance, apparently membranous, lining the whole internal surface of the upper part of the trachea, and extending in the same manner downwards into some of its ramifications. This preternatural membrane may be easily separated, and has been sometimes found separated in part, from the subjacent proper membrane of the trachea. This last is commonly found entire, that is, without any appearance of erosion or ulceration; but it frequently shows the vestiges of inflammation, and is covered by a matter resembling pus, like to that rejected by coughing; and very often a matter of the same kind is found in the bronchiae, sometimes in considerable quantity.

2. *Causes.*] From the remote causes of this disease; from the catarrhal symptoms commonly attending it; from the pyrexia constantly present with it; from the same kind of preternatural membrane being found in the trachea when the cynanche maligna is communicated to it; and from the vestiges of inflammation on the trachea discovered upon dissection; we must conclude, that this disease consists in an inflammatory affection of the mucous membrane of the larynx and trachea, producing an exudation analogous to that found on the surface of inflamed viscera, and appearing partly in a membranous crust, and partly in a fluid form resembling pus.

Though this disease consists in an inflammatory affection, it does not commonly end either in suppuration or gangrene. The

troublesome circumstance of it seems to consist in a spasm of the muscles of the glottis, threatening suffocation.

When this disease terminates in health, it is by resolution of the inflammation, by ceasing of the spasm of the glottis, by an expectoration of the matter exuding from the trachea, and of the crusts formed there, and frequently it ends without an expectoration, or at least with such only as attends an ordinary catarrh. But, in some instances, a salutary termination has very speedily taken place, in consequence of the discharge of the membranous substance from the trachea, even under its proper tubular form.

When the disease ends fatally, it is by a suffocation seemingly depending upon a spasm affecting the glottis; but sometimes, probably, depending upon a quantity of matter filling the bronchiæ, or obstructing the trachea.

3. *Distinctions.*] Without taking part in any controversy on the subject, we shall here introduce the arguments of those who make a distinction between the inflammatory and spasmodic descriptions of this disease, and who, of course, suggest the necessity of a material difference in the treatment.

Mr. Field, a practitioner in London, has published, in a periodical work, some remarks, "on the different kinds of disease which have been known under the general name of croup, and also on the nature of the malady as to contagion."

"It has been stated by authors," says he, "that there are *two* kinds of this disease, the one *spasmodic*, and the other *inflammatory*. Of the propriety of this distinction I am at present well satisfied, and am only concerned, that two diseases, so extremely different in their causes, and consequently in their mode of treatment, should be confounded under one and the same title; a circumstance which has an evident tendency to mislead the practitioner, and which has undoubtedly been the reason why we find such very opposite modes of cure recommended by different writers, and each with a confidence derived from some degree of experience.

"That the symptoms of the two diseases bear considerable resemblance, will readily be allowed; nevertheless, there are evidences of difference, I think, sufficiently strong to enable an attentive person to discriminate them. These marks of distinction I shall endeavour now to describe, and, to give them the greater effect, shall contrast one with the other:

"The *spasmodic* croup always attacks suddenly, and usually in the night. The attack of the *inflammatory* croup is sometimes equally sudden, but more generally gradual, being preceded a few days by slight feverish symptoms, and a teasing throat cough, not however sufficiently important to create the smallest uneasiness in the friends of the patient. The *spasmodic* croup often intermits; and in these intervals, both the respiration and the cough, if any exists, are free from its usual characteristic sound: the inflamma-

tory, on the contrary, when once completely formed, never intermits so as entirely to lose its distinguishing mark, particularly in coughing; add to which, the heat, frequency of pulse, and other symptoms of *pyrexia*, are found in the latter in much greater degree than in the former. Dr. Rush has mentioned several other marks of difference; but as they apply chiefly to the effect of remedies, and to the later stages of the disease, it is not judged necessary to insist upon them here, it being in the first attack of this malady, that a due discrimination becomes so extremely important; that being the time in which the application of powerful and decisive remedies is most conducive to the relief of the afflicted, a delay of a few hours being frequently the cause of irreparable injury.

“Every author that I am at present acquainted with, has denied this disease to be of an *infectious* nature. In a former paper on this subject, I have taken the liberty to suggest my doubts as to this opinion being well founded, for which I have there assigned reasons; since that time, my particular attention has been given to that point, and I am sorry to add, that increased experience has tended to confirm me more strongly in the opinion, that the true *cynanche trachealis* is a contagious disease. I have since met with repeated instances of its occurring in the same family, and that after such an interval as we most usually find contagious diseases to require in order to produce their morbid effects, namely, from six to ten days: whether the above opinion be well or ill-founded, I would strongly recommend to practitioners to avoid the danger of communication, by requesting that every child may be removed, if possible, from the same house; or, at all events, be prevented entering or coming near the sick chamber.

“It has been said that this disease has occasionally been met with in adults. When this has been the case, I am very much disposed to think, that it was not the inflammatory, but the spasmodic croup; in confirmation of which opinion, I have never heard of its having proved fatal to them.”

Mr. Leeson, of Grantham, who writes in the Medical and Physical Journal, laments, that, in the narration of medical facts, an unjust preference is given to such as have had a favourable issue; while unsuccessful cases, however interesting in their progress, or important in their event, seldom are brought before the public eye.

“I have been led,” says he, “to these reflections by some accounts I have lately seen, of the successful treatment of the croup. Judging from these descriptions, a person would naturally conclude the croup to be a disease of long duration and easy management. As by one author we are informed, that mercury employed, so as to produce salivation, effectually cures: another is confident of the success of a lotion made with the spiritus ætheris vitriolici.

compositus: while a third relies upon a decoction of *seneka*. No doubt, all these remedies might be productive of good effect, if the rapid progress of the complaint allowed them to be fairly tried. But I am afraid, such is the celerity of the dangerous symptoms, that few practitioners have had the pleasure to experience a recovery from the true croup. It may be right, I should define what I understand by the *true croup*: by this term, then, I would express a disease, arising from an extravasation of coagulable lymph within the trachea and bronchial tubes, which occasions that peculiar sound in inspiration we should expect, was the breath drawn through a narrow pipe. This is preceded by a slight inflammatory stage, of which the symptoms are so little troublesome, as seldom to be observed.

“ In considering the *cynanche trachealis*, it is necessary to premise, that two distinct diseases appear to have been classed by writers under the same name. The one arising from a spasmodic stricture of the parts surrounding the trachea; the other depending on extravasation, the consequence of inflammation. In the first, the exhibition of an emetic seldom fails to remove the complaint, while the second bids defiance to every effort of art. In the spasmodic croup, the attack is sudden, generally commencing some time after the patient has been in bed; it is accompanied by remarkable anxiety, and oppression about the breast; a hoarse shrill voice; great redness of the countenance (which expresses most grievous uneasiness); quick and difficult respiration, and a soft pulse. Upon the operation of an emetic, these symptoms gradually subside; the patient sinks into a slumber, and awakes with little remains of the complaint. I am acquainted with a family, in which this complaint has attacked more than once, each child of a numerous offspring, and has never failed to disappear upon the operation of an emetic.

“ Very different is the progress of the *inflammatory croup*; in this, the first appearance of disease is of such an insidious nature, as seldom to create any alarm, being considered by the attendants as a slight cough accompanied with hoarseness. By degrees the roughness of the voice becomes more remarkable, the breath is drawn with difficulty, as if through a narrow pipe, occasioning a peculiar shrill sound*; there is a constant feverish heat upon the skin, together with a profuse perspiration about the head and face, insomuch that the sweat stands in drops upon the countenance, which exhibits the greatest anxiety; the pulse is quick and soft; the lips are pale, frequently livid; the changes of countenance are sudden and frequent; at one time it is red, in an instant it is pale

* *Febris excitatur ad liberandum corpus a muco, & membrana extra vasa.
Hinc de Suffocatione Stridula.*

as a corpse. The progress of this disease, from its commencement to its termination, as far as you may depend upon the information of nurses, never exceeds more than four or five days: from the first appearance of danger, the patient seldom continues more than thirty-six hours, rarely so long. I have been obliged to refer to nurses, as I believe few medical men have witnessed the first attack of croup, it being too inconsiderable to merit their attention."

Having enumerated the pathognomonic symptoms of the croup, Mr. Leeson details two cases, which occurred to him, and which we will notice hereafter.

An elaborate and ingenious account of the croup, as it appeared in the town and neighbourhood of Chessham, in Buckinghamshire, in the years 1793 and 1794, by Mr. RUMSEY, of that place, is inserted in the Transactions of the London Society for improving Medicine and Surgery. It is so judiciously written, and points out such important peculiarities that we shall present it to the reader with very little abridgement.

After stating that the disease in question was not confined to the town of Chessham, which lies in a valley, but likewise shewed itself, with equal violence, upon the neighbouring hills at the distance of five or six miles from the town, Mr. Rumsey proceeds thus:

"The subjects were children from within the first to the nineteenth year. Authors speak of twelve years being the extent of age in which the complaint takes place, but I have met with it in a boy of thirteen, and in a girl fourteen years old.

"It attacked very different constitutions. Some were of pale phlegmatic temperaments, but this was by no means the case generally; for many were fine, healthy, robust children.

"The disease crept on the patient almost imperceptibly, beginning with a hoarseness or wheezing, a short dry cough, and sometimes a rattling in the throat when asleep. These symptoms were at first but little attended to, owing to the general health of the child appearing good, the countenance not altered, the appetite and spirits nearly as usual, excepting at intervals. As the disease advanced, the wheezing became more observable, the cough more or less troublesome, the voice in coughing or speaking acquired a shrill sound, respiration was performed with a wheezing or sometimes croaking noise, and at length grew very distressing and laborious. At the beginning, or in slighter cases, the sound of inspiration resembled the passing of air through a piece of muslin; afterwards it was as if the noise came from a brazen tube. The cough was attended with a peculiar shrill sound, even at an early period of the disease, (see Case 14.) as well as the voice, where there was not a perfect hoarseness. I have heard those about the sick com-

pare it to the noise which a fowl makes when caught in the hand, or having upon it the disease to which that class of animals is liable, called the croak.

"This peculiarity, however, is not easily expressed by words, but a knowledge of it is readily acquired by observation. I have known the sound of the cough alone greatly shock an unfortunate parent, who had already lost one child with the complaint.

"It sometimes happened, that symptoms which appeared trifling for two or three days suddenly increased, and the disease advanced so rapidly, as to prove fatal before many hours had elapsed. See Case 1.

"The difficulty of breathing struck me as being different from what we usually observe, when there is an inability fully to expand the lungs; for in the croup the peculiar manner in which the patient breathed indicated an obstruction in the passage of the air to the lungs. See Case 9.

"In some of the patients this symptom increased very much by paroxysms, occasioning extreme anxiety and inquietude, so that they seemed at these times to be in danger of immediate suffocation."

After representing that a considerable aggravation of all the symptoms took place during the night, and that this indeed was the case throughout the disease, the author says,

"At first the cough was dry, but in the course of the disease, viz. by the third day, or sooner, the passage of the air was obstructed by viscid matter in the trachea, some of which was occasionally thrown up by cough or retching; and according to the quantity thrown up respiration was more or less relieved. Several children brought up portions of a film, or membrane of a whitish colour, resembling the coagulated matter which was found in the trachea of those children whose bodies were opened. This was thrown off by violent coughing or retching; and the efforts made to dislodge it were often so distressing, that the child appeared almost in a state of strangulation. This was succeeded by an abatement of all the symptoms, until a fresh quantity of the same substance was formed, when the distress recurred as before.

"Most of the cases which occurred in November, and afterwards, were attended with inflammation and swelling of the tonsils, uvula, and velum pendulum palati, and frequently large films of a white substance were formed on the tonsils. The swallowing was usually less impeded than might have been expected from the degree of disease which existed in the throat. Dr. Cullen observes, "when the internal fauces are viewed, they are sometimes without any appearance of inflammation, but frequently a redness and even a swelling appear." But much more disease in

these parts accompanied the croup in many of the cases which occurred in this neighbourhood.

“ By the end of the second, or on the third day, symptoms of affection of the system took place, as white tongue, thirst, increased heat, and frequent pulse; and the disease advanced rapidly, not merely from violent general affection, but from the influence it had on the organs of respiration, the difficulty of breathing becoming now very distressing, the countenance being often flushed, attended with great inquietude and a continual inclination to change from place to place. The child, at the same time, eagerly put its fingers into its mouth, as if to pull away something which stuck in the passage.

“ The senses were retained throughout the disease, until the child was at the point of death, which was preceded by the red flushing of the face changing to a livid hue, and the hands at the same time acquired the same colour. The patient was cut off apparently by suffocation.

“ In the first case the disease terminated fatally on the third day. None of the patients whom I have attended have died at an earlier period. Although the patient has been said to have sometimes died within twenty-four or thirty hours after the disease began, yet I have found upon closer examination, that the disease had existed longer, and that the attack had been carelessly dated from the time that severe symptoms appeared. A more speedy termination of the croup is however mentioned by some physicians, who have written on the disease. Where it has proved fatal, I have usually seen it run on to the fourth or fifth day, or even later. Where considerable portions of the membranous film, formed on the surface of the trachea, were thrown up, life was protracted still longer, in one case even to the tenth day. See Case 9.

“ The affection of the system was different in degree, and irregular in its progress. It usually increased towards night. In some of the earlier cases this wore rather an inflammatory appearance, and the skin was hot and dry. Afterwards, however, this was not observable, and the skin was often relaxed and moist throughout the disease.

“ This morbid affection of the system in the croup appears to be symptomatic. I have not seen any danger arising merely from these symptoms, which commonly took place in a degree proportionate to the state of respiration. The danger is not to be estimated by the general state of the body; for there may be imminent danger, although hardly any symptoms of general disease have been observed. See Case 1. It is particularly necessary for those practitioners who have seen but little of the croup, to attend to this. If they expect to meet with a considerable affec-

tion of the system, they will not be aware, that so formidable a disease has begun its progress; since, for the first day or two, the child has only a slight cough and hoarseness, is in good spirits, perhaps even running about the room and enjoying its amusements; many instances of which I have known.

"The same appearances have been found upon dissection by the different practitioners, who have examined the bodies of children who have died of the croup, so that no doubt remains with regard to the seat of the disease. I had an opportunity of examining three, and found a film or membranous substance lining the cavity of the trachea: in two of them this was lying loose, but in one it adhered firmly at the lower part.

"This disease is considered as an inflammation of the phlegmonous kind by Dr. Home, the first author who has distinguished it from other inflammatory affections of the throat, and he has called it suffocatio stridula. Dr. Cullen was likewise of the same opinion, and under the name cynanche trachealis has arranged it in the order phlegmasiæ, class pyrexia.

"In all the instances in which I have had an opportunity of seeing the disease, it was of the inflammatory kind; unless Case 12. Several of my patients had, notwithstanding, considerable spasmodic affection of the respiration, blended with the other symptoms, if sudden attacks by paroxysms be sufficient evidence of spasm. But this, I apprehend, was a symptomatic effect (although truly alarming), arising from the irritation which the inflammation excited.

"Indeed *spasm and inflammation are two diseases so totally different from each other*, that there does not appear to me any propriety in describing under one name two diseased actions which in their nature are so distinct. That there is a disease called croup, in which there is an increased secretion from the mucous glands of the trachea, and also a membrane-like substance formed on its surface, is sufficiently proved by the observation of different practitioners. Now if similar external marks of disease occasionally arise where there are none of these internal morbid appearances, may we not conclude, that these are two diseases which in their nature are totally distinct from each other, rather than two species (or modifications) of the same disease?

"It appears to me that the croup is an inflammation of its own kind. If it consisted in common inflammation, we might expect to find the same appearances (that is, the same kind of concretion on the surface of the trachea) every day, as its mucous membrane is so frequently the subject of inflammation attended with an increased secretion. The matter, however, of which this substance is formed, possesses different properties from those of the mucus which is thrown out upon the membrane of the nose, or of the trachea in common catarrhal affections.

"I think it probable, that the film which we find in the croup is not formed by a secretion from the mucous glands, but is an exudation from the exhalant arteries. Upon this principle we can more easily account for such film not being found in common catarrhal affections, in which the mucous glands are perhaps more the seat of the disease. It is, therefore, analogous to the inflammatory exudation in the inflammation of other internal membranes first described by the late Dr. Hunter."

Mr. Rumsey says, the croup has been sometimes thought *infectious*, but he has not yet formed a decided opinion upon this. He has known two, and sometimes three, children in the same family to have been seized with it; whilst, on the other hand, he has occasionally seen two or three in a family escape, while one or two of the others have died of the disease; no pains being taken to keep the healthy from the sick.

"When a disease," says he, "is *epidemic*, it is sometimes difficult to determine whether it be communicated by infection; or whether several people have the disease in consequence of their being exposed to the same exciting cause. It is rather remarkable, that although there were between twenty and thirty children in our workhouse, only one had the disease. Upon the whole, I met with above forty cases. The croup has but rarely made its appearance in this neighbourhood. My father, who has been in considerable practice here above forty years, does not recollect seeing more than eight or ten cases."

4. *Treatment.*] As we suppose the disease to be an inflammatory affection, so we attempt the cure of it by the usual remedies of inflammation. Bleeding, both general and topical, has often given immediate relief, and, by being repeated, has sometimes cured the disease. Blistering, also, near to the part affected, has been found useful. Upon the first attack of the disease, vomiting, immediately after bleeding, seems to be of considerable use, and sometimes suddenly removes the disease. But emetics are still more useful in advanced periods. By the employment of these, the matter obstructing the trachea, and inducing spasmodic affections, has often been successfully removed, when the situation of the patient seemed to be almost desperate. And as in the progress of the disease fresh effusions of this matter are very apt to take place, the frequent repetition of emetics becomes necessary. It is often advisable to have recourse to those operating the most expeditiously, such as vitriolated zinc, even in large doses. In every stage of the disease, the antiphlogistic regimen is necessary, and particularly the frequent use of laxative clysters. Although it has been supposed that a spasm affecting the glottis is often fatal in this disease, yet antispasmodic medicines have not been decisively recommended, until, after repeated experi-

ence of their good effects. This important point was established by Mr. Kendrick, an ingenious surgeon at Warrington.

Some indeed have strongly recommended the use of asafœtida under the form of injection; others have placed great confidence in oil or oily mixtures taken by the mouth: and it is supposed that benefit is derived from tepid bathing, and from the employment of vitriolic ether, both externally and internally. But of all remedies of this class, the principal one is opium; an account of the use of which in this disease, Mr. Kendrick accompanies with the following remarks.

“It frequently happens (says he) that this disease puts on for some days the appearance of a common catarrh; but in which the difficulty of breathing increases generally in the evening, and a sense of suffocation is perceptible, attended with a small quick pulse, often 130, 140, or 150, in a minute. Slight rigors, succeeded by heat and flushing in the face, are frequent. And here let it be remarked, that in no one instance have I ever found the pulse *hard, full, and strong*, as described by some authors, but *quick, hard, and small*. Neither, reasoning from circumstances, would one be led to expect it; as, whether more or less of inflammation exist, the transmission of blood through the lungs must be too much impeded to allow a *full or strong* pulse.

“As the disease goes on, the difficulty of breathing increases, and with it that peculiar noise, which, although difficult to be described, cannot easily be mistaken by any one who has once heard it. The cough attending it, although frequent and violent, does little or nothing towards dislodging the inspissated lymph. The prostration of strength is for the most part sudden and great; and I suspect that it is, in general, greater, in proportion to the degree of inflammation; as in some instances where there was reason to suspect but little inflammation, the patients have played with other children till within two or three hours of their death. In these cases, likewise, convulsions generally usher in the fatal scene: and at all times, whether the disease be purely inflammatory or not, a great degree of irritability exists in the system.

“Cold, or cold and moisture combined, have been supposed the principal causes of this disease; although it by no means appears that it has occurred as an epidemic in seasons remarkably cold or moist. Why, too, the application of cold to the trachea should at one time cause common catarrh, at another, cynanche trachealis, it is not easy to explain.

“With regard to the question, is it, or is it not, *infectious*? I feel myself incompetent to answer, having had no good reason to suppose the affirmative. In two of the cases I had under observation, the parents had lost each a child, about two months before the same complaint,

“With respect to the cure, the following method I have

what has answered best in my hands. If the disease take place in a child of a plethoric habit, as is most commonly the case, blood should be immediately taken either from the arm or jugular vein, and that in proportion to the violence of the symptoms. Typical bleeding by leeches applied to the throat is likewise of very considerable service, after which, a blister extending across the throat should follow. In the mean while the inspissated lymph should be dislodged if possible by emetics, which should be repeated as often as an increased difficulty of breathing indicate a fresh accumulation. For this purpose I have generally used the tatarised antimony, but it will be found that more considerable doses of it may be administered in this disease than any other, to produce the desired effect. Perhaps other emetics might be more suddenly effectual, but its tastelessness has been my motive for preferring it. Of late the *Seneca Root* has been strongly recommended for this purpose by an American gentleman; but of this I have had no experience. It is almost needless to say, that it is necessary to keep the bowels open through the whole disease.

“The warm bath has been recommended by many in this disease, but I have never seen much benefit arise from its use.

“These are the most material of the remedies that can be employed when the disease is purely inflammatory; but as I apprehend it is often but little so, and frequently *almost entirely spasmodic*, I beg leave to offer, with diffidence, what, so far as I know, is a new remedy. I mean *opium*, which, in a number of cases during the year 1794, when this disease raged in our neighbourhood, and also on various occasions since that time, has been attended with success. This, at least, may be relied on, that at that time, whenever it was not used, the disease proved invariably fatal, and that under its use *by far the greater number recovered*. What led me first to employ it was the inefficacy of other remedies, and a suspicion, from the suddenness with which death took place, that spasm more than inflammation was the cause. I thought therefore, that by lessening the irritability of the system at large, I might, perhaps, put off the fatal issue; and my success answered my most sanguine expectations.

“For this purpose pretty large doses are generally requisite. Five, six, or eight drops of tinct. opii may be given every two hours, until sleep, or a remission of the spasm, take place. This, however, I never thought it prudent to do until such time as the usual evacuations had been previously made; and through the whole disease I had recourse to emetics once or twice a-day if there appeared reason to suspect lymph or mucus in the trachea. It has in general happened, that in three or four days the farther continuance of opium became unnecessary.”

To the foregoing judicious observations we shall add the different modes of treatment, practised and recommended by those

gentlemen who have stepped forward as advocates for the division of that disease into two distinct species. Mr. Field says,

“The first and most important curative indication in the treatment of the *true* or *inflammatory* croup (for to this our present observations will be confined) is, to diminish the quantity of blood. In a former paper on this disease, I gave a caution against the use of the lancet, from an apprehension that the early debility, which had been observed to come on, would render general bleeding an unsafe and improper practice, and that our evacuation of blood should be only topical, by means of leeches; which, however, was advised to be freely and vigorously pursued. Since that time I have had opportunities of observing, that the lancet may not only be safely, but even advantageously employed, and that it should never therefore be omitted, when medical advice is required in the earlier stages of the disease, from two to four or five ounces of blood being taken away, according to the age and strength of the patient; much caution is nevertheless requisite in repeating this operation. If any abatement of symptoms takes place after the first bleeding, which frequently happens, I should certainly think it unnecessary to repeat that evacuation; but if an evident exacerbation should afterwards come on, it will be generally proper to do so; in this case a topical discharge, by means of leeches, appears to me much to be preferred to a general one. Allow me here to give a caution relative to the prognosis in this disease. The means now recommended in the early stage of it, being frequently followed by a considerable and very flattering appearance of recovery, the practitioner may be so far deceived as to be encouraged himself, and, in consequence, to encourage the friends of the patient, with great expectation of a favourable issue; but in this he cannot be too much on his guard, nor should he consider the danger to be past, until three or four days have elapsed without a return of symptoms, by which time the patient will have made considerable progress towards recovery.

“Our next subject will be an enquiry into the use of blistering in the cure of this disease. I have, on a former occasion, taken notice of Dr. Home’s objection to the early application of blisters to the affected parts, as liable to do injury by their immediate stimulus. I am well satisfied, from later observations, that this objection is well founded, although sufficient attention does not seem in general to have been given to it; and whoever considers the extreme vicinity of the diseased part to the external surface of the throat, must surely coincide with me in opinion, that the application of a blister immediately to the part must act as a local stimulus, and therefore must increase, rather than diminish inflammation. Vescicatories should, for these reasons, be either entirely omitted, or else applied only to distant parts. Whether they will in the latter case be of any service, I am at present unable to ascer-

tain. Blisters were applied in only two of the present cases, and in those there is not the smallest reason to suppose, that they contributed in any degree to the cure; in the last of the two, the blister scarcely took any sensible effect on the skin.

“The situation of the trachea with respect to the external integuments, which I have above alluded to, suggested to me an idea that refrigerating, and also sedative remedies, might be used externally with advantage. In the third and fourth cases now recited, I made trial of an embrocation with that intention; how far the success of those cases is to be attributed to this remedy, it is impossible to say; it is sufficient, however, to enable me to recommend this and similar applications to further trial, and also emollient and sedative cataplasms and fomentations. The occasional use of emetics, so as to produce their full effect, and their constant use so as to excite nausea, as far as has hitherto appeared, seems to be attended with good consequences. The body should be kept at all times in a soluble state, but any considerable evacuation by stool is better avoided, its immediate tendency being to debilitate, without apparent advantage, in relieving the patient. The warm bath, either partial or general, may be employed with probability of benefit.”

The author describes several cases treated by venesection, leeches, blisters to the sternum, antimonial emetics, laxatives when necessary, and an embrocation to the throat, by means of linen cloths, constantly wetted with

(No. 82.) *R. Aq. ammon. acet. unc. ij.*

Spir. æther. vitr. comp. unc. j. Misce.

Dr. Huggan, a writer on the croup, objects strongly to some parts of Mr. Field's practice, particularly against too copious a venesection in children, which, he says, will hasten a fatal termination of the disease.

“In a manuscript copy of the late Dr. Gregory's Lectures,” says he, “I found a caution respecting bleeding in children, even with leeches, as being apt to bring on fits. Now, if the learned professor's admonition was the result of experience, and a case which I myself once saw, leaves me little room to doubt it, what have we not to dread from taking away blood in a large stream from infants?”

“The symptoms of croup being so very alarming, often threatening immediate death, demand the most speedy as well as judicious exertions of the physician to combat them.

“Former experience having taught him, that blood-letting has, in most instances, alleviated all the violent symptoms of the disease; and thinking it unsafe to trust to any other remedy, however equally efficacious that may be, in producing the same good effect, from the fear of its not being as quick in its operation, his own professional character, perhaps, being at stake, in case of

failure, from trying a mode opposite to that which has received the sanction of the greatest names in the profession, he is therefore compelled by a sort of necessity to have recourse to bleeding, as the speediest means of averting the present danger, regardless of any future bad consequences that may follow this measure. Experience authorises me to say, that *opium in the form of tincture* will, if in a dose proportionate to the violence of the disease, give relief as speedily as venesection or any other remedy."

In adopting the latter remedy, Dr. Huggin coincides with the excellent practice recommended first to public notice in a communication from Mr. Kendrick.

"From the little that has fallen within my own observation," continues Dr. Huggan, "I cannot too forcibly deprecate the use of the lancet in croup."

Mr. Rumsey found calomel, in alterative doses, as recommended by Dr. Rush, a useful remedy, as appears by the particulars of the treatment which he annexed to his account of the disease. Alluding to eight cases, which we shall presently introduce to the reader's notice, he says,

"The event of these, and of many more cases which I afterwards met with, convinced me that the adage "*si quid movendum, principio movendum*," was in no instance more applicable than in reference to the present disease.—Yet the trining appearance of the croup in its early stage so rarely excited the apprehensions of parents, that I had very little opportunity of fairly trying the effect of medicine, until the disease had advanced to such an height as too frequently to baffle all our exertions. The antiphlogistic plan (particularly bleeding from near the part); if adopted at the commencement of the disease, appeared to me the mode of proceeding which afforded the most hopes of success. But when I found so much disease about the tonsils, as I have already described, bleeding from any large vein appeared to me altogether improper; and the more so when I considered the kind of diseases (ulcerous sore throats) which, at this time, we met with in the country. In two cases, where nothing beyond slight inflammation and swelling of the tonsils accompanied the other symptoms, having been consulted pretty soon, I applied to one patient six, and to the other three leeches upon the throat, but without success. In conversation with my neighbour Mr. Suthery, an ingenious and liberal practitioner, he observed to me, that in September he lost a patient in the croup, and desired the mother that if any of the other children should have any appearance of the same complaint they would acquaint him immediately; in a few days after, a boy in this family, six years old, was seized with the croup, and Mr. Suthery was called in upon the second day of the disease: he bled the child, and prosecuted the antiphlogistic plan, yet with this treatment he died.

" I usually found my patient in a situation in which the only rational indication of cure was to promote the expectoration of that matter which was accumulating on the surface of the trachea. This I endeavoured to do by giving gum ammoniac, squills, and other expectorants; or small doses of ipecacuanha; or an antimonial preparation, both in order to promote this intention, and likewise to keep up a determination to the skin: having previously given an emetic, which was repeated in the course of twenty-four hours if an opportunity offered.

" A blister likewise, applied either to the throat or breast, was a part of the usual practice which I followed for some time; but not perceiving the least advantage from this application, after repeated trials I discontinued it.

" Among other things, the warm bath was made use of by many patients and repeated; sometimes fomentations to the throat and breast with emollient cataplasms were tried. And likewise, where it could be managed, the vapour of warm water was inhaled by means of Mudge's inhaler.

" The ordinary mode of treatment proving inefficacious, I thought myself justified in stepping out of the common track; and therefore gave the cicuta in several instances, but with no better effect. Where the feel of heat did not forbid, and spasmodic affection accompanied the other symptoms, I gave æther in small doses, and repeated it; but my efforts did not yet avail. Dr. Cullen says, 'although we suppose that a spasm of the glottis is often fatal in this disease, I have not found antispasmodic medicines of any use.'—I had, at length, the satisfaction of seeing a child recover after taking the tinct. scillæ and vin. ipecacuanhæ in such doses as to excite vomiting, which were repeated every four, five, or six hours*. Indeed I found vomiting the only means of dislodging the matter which was collected in the trachea: for children are so averse to expectorate, that if they are prevailed on to take such medicines as have a tendency to produce this effect, they will endeavour as much as possible to check this evacuation.—I adopted the same practice in several instances afterwards, but could only procure temporary relief, which was in proportion to the quantity of mucus brought up.—In conversation with my brother on the subject, he mentioned that Dr. Rush had recommended calomel in the croup. I was highly gratified with this information, and determined to try the effects of calomel the first opportunity. Yet as the doctor recommends it to be 'repeated in smaller doses every day,' it is pretty evident that the disease appeared in a milder form in Philadelphia than it has here: for before I saw the patient the disease was so far advanced, that had I confined myself to this mode of admi-

* See Case 10.

nistering this medicine, there would have been no chance of repeating the doses many times.

“However, I gave the calomel in what I thought the most efficacious manner, and had the satisfaction of seeing some patients recover under such treatment. I have not had sufficient experience to determine whether it is so powerful an antidote in the croup as the author, whose practice I adopted, supposes. Having stated all the cases in which the mercurial treatment was fairly tried by me, I must refer the reader to them, and leave him to draw his own conclusions.”

C A S E S.

Mr. Rumsley here apprises us that the first eight of the following Cases occurred between the beginning of March and the end of September, in the year 1793.

CASE I. “A girl, about four years old, was taken, March 9, 1793, with a wheezing and very slight cough; her constitution in every other respect being healthy. March 12, I accidentally saw her, and, being struck with the manner in which she breathed, I noticed this circumstance to the mother, who said that the child was pretty well in health, but had had a very slight cough, and had breathed with this kind of difficulty for two or three days, and now and then, during this period, had had an inclination to retch. From the difficult respiration, and peculiar shrill sound of the voice, I judged that the child was labouring under the suffocatio fridula, or croup, and recommended an emetic, which was given in the evening. The child passed the day without any appearance of general disease; and after taking the emetic, she seemed to be somewhat relieved in her breathing. No material alteration took place until between five and six o’clock in the morning, when the respiration became very laborious, and in about three hours the child died. A blister was laid upon the breast, but we had not time to administer any internal medicines.

“The next day I opened the body. No morbid appearance was observable in the cavity of the thorax, or in any of its viscera. I then laid bare the trachea, and opened it longitudinally from the glottis to its bifurcation, and here the effects of disease were sufficiently obvious, and such as enabled us at once to account for the child’s death. About two inches of the upper part of the cavity of the trachea was lined with a membrane which in appearance very much resembled the buff on the surface of the blood drawn from patients in pleurisy, and other inflammatory complaints. This was evidently the coagulated lymph which had been thrown out, and coagulated on the surface of the mucous membrane. The lower part of this cavity was covered with a purulent mucus

in considerable quantity, which appearance likewise was traced to the beginning of the ramifications. The mucus and film being removed, the mucous membrane shewed marks of slight inflammation.

“It is evident that this child died from suffocation, the passage of the air to the blood being obstructed by the film and mucus which covered the internal surface of the trachea. But it is worthy of notice, that, as long as the lungs were tolerably supplied with air, no general affection of the system was excited, for the child appeared chearful even to the last day.

CASE 2. “To this child I was called June 13, eight A. M. This was a fine beautiful boy; three years old, who had not had the measles (a disease very prevalent at the beginning of the summer). I found him labouring hard for breath, a great wheezing, or rather croaking sound, attending respiration; he had some cough, and a shrillness of voice upon speaking or coughing; his countenance was flushed, pulse frequent, skin rather hot and moist. The mother informed me that a trifling cough, with hoarseness, had been coming on two or three days; that she observed a difficulty of breathing all yesterday, which increased towards night; the appetite had been more considerable than usual until last night, when a little sickness came on, and the difficulty of breathing afterwards increased. During the early part of the night the child slept, but about four o’clock in the morning the breathing became very laborious, and continued growing worse until the time when I saw him. I immediately laid a blister across the throat, and ordered a teaspoonful of the oxymel scillæ and vinum ipecacuanhæ to be given often, with a view to dislodge some of the viscid phlegm which impeded respiration.

“In four hours after I saw the child again, the disease had made a rapid progress, only two tea-spoonfuls of the medicine had been swallowed, and but little else. The countenance was much altered, the red flushing was changed to a darkish or livid hue, the eyelids half closed, unless when roused; respiration very laborious, pulse weaker and smaller; and the whole appearance was such as indicated a quickly approaching death, which took place in a few hours after.

“The next day I obtained permission to open the body. Neither the cavities of the thorax shewed marks of disease, nor the substance of the lungs. The pericardium contained an ounce of water, but there was no morbid appearance in the membrane. I laid open the trachea, which contained a great deal of a whitish viscid mucus. Towards the upper part of this canal there were some portions of the film, but in less quantity than in the former case. Upon examining the trachea down to its ramifications, a considerable quantity of the same viscid mucus, or phlegm, was observed. When the membrane was cleared, some vestiges of inflam-

ination were seen, particularly at the upper part of the trachea, for as we traced it downwards, this appearance was less perceptible. Indeed in neither of these two cases was there so much inflammation observable in the trachea, as might have been expected from the effects of the disease.

CASES 3 and 4. "The next two patients were in one family, one of whom was three years old, and the other fifteen months. They were healthy children, and perfectly recovered from the measles. They both died nearly at the same time, within twenty-four hours from my first visit: the eldest on the fourth, and the youngest on the third day. As soon as I saw them, I laid a blister across the throat in each, but could only get down a small quantity of the oxymel scillæ. They sank so fast as to be incapable of swallowing any thing in a few hours after I left them.

CASE 5. "About a fortnight after the above two children died, another child in the same family was attacked with the same disease. This was a boy four years old. I was applied to about the beginning of the second day of the disease, and although the symptoms were slight, the disease was sufficiently characterized. I applied three leeches on the throat, and gave him at two doses oxym. scil. ℥i. at the distance of half an hour between them. This producing no sensible effect, the following was prescribed:

(No. 83.) R. Vin. ipecac.
Acet. scillæ aa ℥ij.
Syr. simp. ℥i.
Aq. puræ ℥ij.

M. Detur coch. larg. omni hora."

Mr. Rumfey here candidly observes, that, in prescribing the above, he was not at that time aware that acids counteract the emetic quality of ipecacuanha.—See Woodville's Medic. Botany, p. 563. and Dr. Irving's Dissertation in the proceedings of the Harveian Society of Edinburgh, for 1784.

"The next day," continues the author, "I found him better; he had taken several doses of the mixture without any other effect than occasioning two or three stools. Only a trifling cough remained; the peculiar wheezing, which had been particularly observable when he was asleep, had been much less the last night than the preceding, and he had rested tolerably well. When I called the following day, there were no marks of disease remaining.

CASE 6. "Two more cases occurred in July. One was a fine lusty boy, in his sixth year, not well recovered from the measles, which he had had six weeks before. I was called to this patient early on the third day of the disease. I took from the arm upwards of four ounces of blood, and vomited him with vin. ipecac. and oxymel scillæ; afterwards gave small doses of ipecacuanha, to be repeated every two hours; recommended likewise

the warm bath, and the steam of water to be drawn into the lungs; a blister was also applied across the throat. The next day I found him growing worse, his breathing was very laborious, particularly by paroxysms. He had been put into the bath once, but could not be prevailed upon to use it a second time; nor would he make use of the inhaler. I now gave him half a grain of the digitalis every hour, of which he took four doses without any effect. The disease continuing to gain ground, he died the following evening."

CASE 7. "This case, which occurred in the month of July, was a boy of three years old, of a similar constitution to the former, but more weakened by the measles. He was blistered on the throat on the third day, vomited, and had small doses of ipecacuanha in a saline mixture, but he died on the 5th day of the disease."

CASE 8. "This," says Mr. Rumsey, "was a lusty girl, in her fourth year. I found her breathing with considerable difficulty, and with a croaking noise. She had a troublesome cough, and hoarseness when coughing or speaking, and slight febrile symptoms. Ulcerated fore throats being at this time somewhat prevalent, induced me to inspect the fauces, and I observed a swelling and no inconsiderable ulcer on the left tonsil, although the child had not discovered any pain or difficulty in swallowing. The mother informed me, that the girl had been ill four or five days; her complaint began with a slight hoarseness and cough, but her general health not being altered, this was considered only as a common cold. These appearances however gradually increased, the breathing became more affected, which was particularly observable during sleep; and within the last two days she lost her appetite and spirits, and was very little upon her feet.

"We gave her an emetic, and after the operation she got a little sleep, having apparently obtained for a short time some relief. But no other medicine could be got down, and scarcely any thing else. Respiration became more and more laborious, and she died within twenty hours after my first visit.

CASE 9. "A girl, four years old, on November 10 (being the third day of the disease), brought up a considerable portion of membrane by violent coughing and retching. Here were considerable sloughs on the tonsils. From this time to November 15, four more large pieces of membrane were brought up, each by a very distressing exertion, as if she was almost strangling, but succeeded by a diminution of the wheezing and difficult respiration for a few hours, until a fresh quantity began to accumulate, when the symptoms returned as before. After an emetic the cicuta was given, but on the tenth day of the disease she died.

"The day after she died I opened the body, and found adhesions in both cavities of the thorax, but no marks of recent inflammation either on the pleura, or in the substance of the lungs, so that these adhesions were the effect of a former disease. Upon laying

open the trachea longitudinally, we found a membrane of a whitish colour, which formed a lining to this canal, exactly similar to those portions which the child threw up during life. This lay loose at the upper part of the trachea, and was less firm in its texture there than at the lower part, where it adhered very closely, so that as we traced it some way into the ramifications, we were obliged to peel it off. Having removed this substance, there were manifest marks of inflammation on the surface of the trachea."

CASE 10. "This is the case alluded to page 368. A girl four years old began with taking tinct. scillæ and vin. ipec. about half a drachm of each at a dose, which excited vomiting, by which a good deal of viscid phlegm was brought up, and with it some mucus of a whitish appearance, and of a thicker consistence than the other, looking like coagulated lymph beginning to coagulate, which, by the kind of exertion which brought it up (for she coughed with the vomiting), must have come from the trachea. The medicine was repeated every four, five, or six hours, and gently purged her. She was sensibly relieved after every dose of the medicine. As the complaint gave way, we allowed longer intervals between the doses, till at length it was given only once a day. The peculiar sound of the cough did not go off entirely before the seventh or eighth day, by which time she was free from disease.

CASE 11. "A strong lusty boy, five years old, was taken with the croup November 27, in the evening. I saw him at the end of forty-eight hours, his respiration was then very difficult, and attended with a croaking sound, and he had quite the croupy cough. Small sloughs were to be seen on the tonsils, but he swallowed pretty well. I vomited him with vin. ipecac. and tinct. scillæ; and wished to repeat it every five hours.

"November 30.—His breathing very difficult, cough the same, pulse frequent, skin moist, heat moderate, countenance shewed no marks of disease. He had only taken a second dose of the medicine, which excited no vomiting.

"December 1.—Breathing so excessively bad, that every inspiration occasioned a deep hollowness at the pit of the stomach, and he seemed as if he must be suffocated. His tongue white, but I could not examine his throat. Other appearances as before.

"2d and 3d.—Breathing still very bad, but occasionally mitigated by the phlegm which he brought up, and with which small portions of film were intermixed. We could seldom see the kind or quantity of expectorated matter, for generally as soon as he got it into his mouth he swallowed it. There was sometimes more heat than natural, and a frequent pulse, but upon the whole, no degree of fever to excite apprehension. As no internal medicine could be administered, we used external applications. A large plaster of gum ammoniac, dissolved in acet. scillæ, was laid on the breast, but

neither this nor any cataplasin was suffered to lie on quietly, so as to afford any good reason to expect benefit.

" 4th.—Symptoms diminishing, cough more loose, and from his manner of coughing he seemed to raise a good deal of phlegm, which he swallowed as soon as it came into his mouth.

" The complaint gradually subsided, and by the 8th his breathing was free and easy, and he had but little cough, which founded as a common cough.

CASE 12. " December 21.—I was sent for at ten o'clock at night to see a child two years and a half old, in a family where a child a few weeks before had died of the croup. This little patient had been weakly some months ago, but of late had been in better health. I found him breathing with a stuffing; he coughed a little, and when either coughing or crying, the croupy sound was observable. The mother said that when she put him to bed early in the evening, she did not observe any symptom of this kind upon him, but after he had been in bed about two hours, according to her custom, she went to take him out of bed, and found him in this situation.—He drivelled at his mouth, and said something was in his throat. I could not examine his throat, but he swallowed some butter and sugar which was given him, with apparent ease. He had no fever."

(No. 84.) R. Calomel gr. iij.

Pulv. tragac. c. ℥ss.

Divide in dos. tres equales. Sumat i. 4ta quaq. hora.

Mr. Rumsey found him, next morning, free from complaint. " His mother," says he, " informed me, that he was relieved after taking the first powder, but the wheezing began to increase about the time of taking the second; after which it went off, and did not again return. The third dose however was given.—No other sensible effect was produced than a gentle purging.

CASE 13. " January 4, 1794.—I saw a lusty boy, nearly a year old, at the breast, with the croup, which came on early in the morning of the day before. The croaking sound was so great before the child had been ill thirty hours, that it might be heard at some yards distance from the house. After an emetic, we gave half a grain of calomel every two hours. The next day he was better, but had passed a restless night. Cough began to be loose. Having taken four doses of the calomel, he was gently purged. The medicine was continued, but not so frequently.

" January 6.—Passed a restless night; had several stools; slight febrile symptoms; has continued the whole time to suck, though often with difficulty. From the manner of his coughing and breathing there seemed to be a good deal of phlegm in the passages, which induced me to give an emetic, and afterwards the calomel, as before.

" 7th. He was relieved by the emetic, which he took yesterday evening, but at night he grew worse, and for three or four hours he breathed exceeding badly; towards morning he grew better.—Calomel continued.

" 8th.—Breathing being rather more obstructed, we gave another emetic. From this time he continued getting better, but the croupy sound was perceptible to the 11th, now and then. Afterwards I saw no more of him.—By January 9, twelve grains of calomel were taken; after which he took the same dose three times a-day for two or three days."

Mr. Rumsey observes in a note, that the sudden increase of the symptoms on the 7th, for four hours, had a good deal the appearance of spasm, but that this was symptomatic.

CASE 14. "January 10, 1794.—A fine child at the breast, thirteen months old (brother to the patient, Case 11.), was taken the evening before with hoarseness and wheezing, which continued through the night, but in the morning he grew better. The following evening (the 10th) the symptoms again increased, and when I saw him the appearances of croup were unequivocal." I ordered an emetic, and afterwards a grain of calomel every four hours.

" 11th.—He had not taken any of the medicines, but after I left him he was sick, and brought up a good deal of phlegm. In the course of the night the symptoms subsided, and nothing remained but a trifling hoarseness.

CASE 15. "A boy of a slender form, but healthy, was taken with symptoms of croup on January 16.—His general health was unaffected till the 20th, when a listlessness and failure of appetite began to appear. At night the croupy sound of the cough increased, with wheezing. I now saw him the first time. An emetic having been taken the night before, the mercurial treatment was adopted."

(No. 85.) R. Calomel gr. x.

Cietæ ppt. gr. xij.

M. & divide in partes equales quatuor. Sumat unam
4ta quaq. hora:

At the same time Mr. Rumsey ordered a drachm and a half of strong mercurial ointment to be rubbed into his thighs. In the event of purging, a teaspoonful of syr. pap. alb. was ordered to be given along with each powder.

" 21st.—After I left him at night," continues Mr. Rumsey, "his breathing became very bad, and with considerable straining he brought up a film, by which he was relieved. He coughed but little through the night, and got some sleep.—Towards evening the wheezing increased; cough more frequent, but loose, attended with the croupy sound as before; he has had but little appetite, his

pulse is rather frequent, but is not confined to his bed. A tea-spoonful of the syrup was given, as he had had several stools.—Powders continued, and more ointment rubbed in to-night.

“22d.—He slept last night, breathes easy, cough loose, not frequent, and has less of the croupy sound; countenance wan, but takes little food, and often runs about the house. Bowels lax. Calomel and mercurial friction continued.

“23d.—He is much worse, not from the croupy symptoms being increased, for these are diminished, but sickness and purging are come on, with total loss of appetite, and great languor, weak and frequent pulse.—These symptoms I supposed were the effect of the mercury, he having taken upon the whole forty grains of calomel; and two or three drachms of mercurial ointment having been rubbed in, allowing for what might be wasted by the person's hand who applied it.—I therefore laid aside the mercurial ointment and the calomel, gave him some aromatic confection, and ordered him frequently some cordial-nutrient.

“24th.—I found him in all respects better. The croupy symptoms were entirely gone off, he had only a little cough remaining, which had nothing peculiar in its sound. His stomach and bowels were easy, countenance better, he was chearful, and his appetite began to return. From this time nothing more was done, and he recovered.

CASE 16. “Just as the child whose case I have mentioned above got well, an infant in the same family, at the breast (fourteen months old), was attacked with the croup.—After an emetic, at the end of the second day, a grain of calomel was given every four hours, and some mercurial ointment was rubbed in.—By the fifth day, the use of the mercury was left off, as the croupy symptoms had disappeared. Upon the whole, fourteen grains of calomel were given, and nearly two drachms of the strong mercurial ointment used in friction.

CASE 17. “January 27.—I saw a child at the breast, a year old (four miles from Chetham), severely afflicted with the croup, which, I was informed, came on the day before. I proposed an emetic, and afterwards the mercurial plan.

“28th.—I was prevented seeing him to-day, being detained by a case of midwifery.

“29th.—From the state in which I left the child, I expected to find him either dying, or dead; but I found him much better, the difficulty of breathing subsided, the cough had hardly any of the croupy sound, was loose, and but little troublesome. They had only given two grains of calomel, and none of the emetic.

“30th.—No croupy symptoms remained, and from this time the cough soon wore away.”

Mr. Rumsey concludes with observing, that he has, in this

Instance, given a faithful history of the croup as it fell under his notice. "More extensive experience," says he, "than I have yet had is requisite to determine, whether in *mercury* we shall find a *certain remedy for the disease*." He candidly adds, "with regard to the above cases it should be observed, that some recovered when mercury was *not* administered, or in such quantity as *not to produce any effect*; and in two patients under the care of my brother, it was given *unsuccessfully*. Moreover the disease was less severe towards the end of the epidemic constitution, which was the period when we adopted this plan; so that admitting that all those patients who recovered under such treatment were *cured by mercury*, it does not follow that the same effects would have been produced had it been given in the early cases; yet it surely merits farther trial, the ordinary mode of treatment being so unsuccessful."

The succeeding cases of croup appear in the Medical and Physical Journal. We shall first detail those of Mr. Leeson.

"G. M. eleven months old, naturally of a full habit, recently weaned, and now about his teeth; as he has generally had a cough and stuffing while cutting his teeth, the nurse was not alarmed at this circumstance, which had occurred for a day or two before I saw him. I was first called about eight o'clock in the evening; the great anxiety, difficulty of breathing, and peculiar sound in respiration, clearly indicated his complaint to be the croup: his gums were lanced, an emetic mixture, composed of four grains of emetic tartar, one drachm of oxymel of squills, and an ounce and a half of water, was given in doses of two teaspoonsful every ten minutes until it operated; a lotion, composed of *sp. ætheris vitriolici compositus*, and the *aqua ammoniæ acetatæ*, was applied to the throat. At nine o'clock, the symptoms continuing equally urgent, I had the assistance of an eminent physician resident in this town; by his advice, leeches were applied to the throat, and the patient put into a warm bath; blisters were likewise laid on each side the neck: from these means some relief appeared to be gained. At eleven o'clock, the child being more restless, was again immersed in warm water; an oily mixture was given occasionally. At four o'clock in the morning, the violence of the symptoms increasing, an ounce of ipecacuanha wine was given, in small quantities, before it produced any effect; the warm bath was again used; about seven o'clock the child expired.

"April 20. J. L. aged twenty-two months, yet still at the breast, has had a slight cough for a few days; it has increased much during the night; the child has been very restless, and sweats much about the face and head; swallows with tolerable ease; breathes with much anxiety, and with a peculiar shrill sound. It was nine o'clock in the morning when I first saw this

child ; being aware, from the fatal termination of the former case, of the necessity of powerful means to arrest the progress of the disorder, I immediately opened the jugular veins, and obtained from thence between six and seven ounces of blood ; after which a solution of six grains of emetic tartar, in an ounce and a half of water, with a drachm of oxymel of squills, was given in doses of two teaspoonsful every ten minutes ; the whole mixture was given before any vomiting was produced : the child was then placed in the warm bath for seven minutes. For a short time it appeared to be more composed, and to breathe with less difficulty ; but, about twelve o'clock, the former symptoms returned. A teaspoonful of the decoction of seneka root was then given every half-hour, which excited great thirst, and additional restlessness ; the patient grew worse, breathed with more and more difficulty, and expired about three o'clock, P. M.

“ It has generally been observed, that the croup is most prevalent during a wet season, or in damp situations ; these two cases occurred when the weather was more than usually dry.

“ It will be observed in the above cases, that there was considerable diminution of the sensibility of the stomach ; as appears from the quantity of emetic medicine necessary to produce vomiting. May not this arise from an increased determination of blood to the trachea, diminishing the influx in the vessels of the stomach ?”

Mr. Cusance, of Kidderminster, addressing the editors, says, “ Permit me to embrace this opportunity of transmitting to you two cases of *croup* successfully treated with the digitalis, which, I think, promises to be a very efficacious remedy in that dreadful and generally fatal disorder. I should have waited to see its effects in a greater number of cases, before I had sent you the result, but am desirous of throwing out the hint to practitioners in general as early as possible, and shall be happy to see it has been improved upon, with the desired success, in their future treatment of the croup.

“ Mary Bell, four years of age, was brought to me about twenty-four hours after being attacked with the usual symptoms of croup. The hoarseness, shrill voice, and dyspnoea, were very considerable. I ordered five drops of tinct. digitalis to be given her in water every four hours ; and the next day she was quite free from the complaint, which never returned.

“ Mary Millard, a year and half old, was attacked on the 11th of this month with hoarseness, a barking cough, and great dyspnoea. I saw her about twenty hours after the first appearance of these symptoms, and found her extremely restless, with a very quick pulse. I ordered five drops of the tinct. digitalis every four hours. 12th, Symptoms relieved ; pulse still quick ; has had one

stool. Increased the dose to six drops :—at night p. less frequent ; three stools ; hoarseness and barking almost gone. 13th, Still some barking, but coughs less frequently :—8 o'clock at night, very restless ; hoarseness and dyspnoea increased ; p. very quick. Cont. tinctura. 14th, Slept well ; frequent stools ; dyspnoea and hoarseness much relieved. Adde tinct. opii gt. ij. sing. dos. digitalis : eight o'clock at night, five stools since morning ; p. much less frequent ; dyspnoea and hoarseness still better. 15th, A good night ; two stools ; pulse calm ; dyspnoea quite gone ; some hoarseness remains. 16th, Symptoms of the croup quite gone. 21st, Continues free from complaint."

The same writer, in a subsequent paper, calls the attention of the profession to the power which the digitalis apparently possesses of arresting the dangerous symptoms of that dreadful disorder.

"It doubtless has occurred to many gentlemen," says he, "as it did to me, to make trial of it, upon the principle of its operating so quickly and powerfully upon the arterial system, and thereby stopping the rapid progress of the inflammatory symptoms. Considering the common fatality of the croup, and the little command we have over it by the remedies hitherto usually employed, I cannot but wish that the following additional case of croup I now send you, may be a means of promoting a trial of the digitalis. So much has been written by ingenious men on the subject of croup, that it is quite needless for me to enter particularly into it. The definition of it given by Dr. Cullen in his Synopsis, is so truly characteristic, that it is scarcely possible for any person to mistake the disorder : the "vox rauca" and "tussis clangosa," will infallibly determine the real existence of croup.

"September 17, 1800, Elizabeth Clark, two years of age, was suddenly seized last night, at eight o'clock, with hoarseness and difficulty of breathing ; both which symptoms are greatly increased this morning. She coughs with a barking noise ; pulse very quick ; belly natural.

"Sumat Tincturæ Digitalis (secundum Dr. Maclean), gt. vj. 4tâ. quâque horâ.

"18th. Has taken five doses of the drops ; pulse not too frequent ; dyspnoea and cough entirely gone. Sumat guttas omni 6tâ horâ.

"19th. Took the drops regularly every six hours ; had a slight return of dyspnoea and cough last night, which continued about an hour ; slept well afterwards, and is this morning apparently well."

When visited on the 21st, the patient continued free from complaint.

That the *cynanche trachealis* sometimes occurs in adult subjects, was fatally evinced in the case of that truly great and heroic character General Washington. The observations on the medical treat-

ment employed in that case, by Dr. John Reid, physician to the Finsbury Dispensary, in London, contain many useful strictures, for which reason we annex them to the present article.

"In reading the official report," says Dr. Reid, "of the death of General Washington, as stated in the newspapers, &c. I should imagine, there were few medical persons who did not feel astonishment at the very extraordinary manner in which that great man was treated by his physicians, during his last and fatal indisposition.

"Some time in the night of the 13th of December (1800), it is said, that the general was seized by a disease, called the cynanche trachealis.

"During the same night he sent for a bleeder, who took from him twelve or fourteen ounces of blood.

"The next morning a physician was sent for, who arrived at Mount Vernon at eleven o'clock; when, imagining danger in the case, he advised the calling in of two consulting physicians.

"In the interval, however, he thought proper to employ, in spite of the twelve or fourteen ounces that had already been expended, two copious bleedings. Now, when we consider that these are called copious, and the other is not noticed as such, and also in the difference with which a future most copious bleeding is afterwards mentioned, we may presume, that each of these was twenty-five, or twenty ounces at least,

"After this, 'two moderate doses of calomel were administered.' I know not exactly what a moderate American dose of calomel may be, but if, as it is fair to presume, it be in proportion to the bleedings, we may conclude, that it was at least very considerable.

"Upon the arrival of the first of the consulting physicians, it was agreed, that as there were no signs of accumulation in the bronchial vessels of the lungs, they should try another bleeding.

"Now this appears to be perfect inexplicable.

"As there were at present no signs of accumulation in the bronchial vessels of the lungs, they were driven to another bleeding. Hence, it would seem, that this last bleeding was to *produce* an accumulation in the bronchial vessels of the lungs. There was great difficulty of breathing, great inflammation; but as there was, as yet, no accumulation in the lungs, they were determined to induce that also; and, as a likely mean of inducing it, had recourse to a most extravagant effusion of blood. This is not an unfair interpretation of their words; but it could not have been their real meaning; their real meaning it is impossible to discover. In addition to all the previous venesections, thirty-two ounces are now drawn! The medical reader will not be surprised to find that this was unattended by any apparent alleviation of the disease.

"In the next place, vapours of vinegar and water are frequently inhaled. Two doses of calomel were already given; but this is not deemed sufficient, ten grains of calomel are added: nor is even this sufficient; repeated doses of emetic tartar, amounting, in all, to five or six grains, are next administered. It is said, 'the powers of life now seemed to yield to the force of the disorder.' To many it may appear, that the yielding of the vital principle, in these circumstances, was not *altogether* owing to the force of the disorder.

"The patient, lying in this feeble and nearly exhausted state, is to be still farther tormented. Blisters are next applied to his extremities, together with a cataplasm of bran and vinegar to his throat.

"It is observed, that 'speaking, which was painful from the beginning, now became scarcely practicable.' When we reflect upon that extreme degree of weakness to which the patient must, by this time, have been reduced, and that he had both a blister and a cataplasm of bran and vinegar at his throat, can we wonder that speaking would be scarcely practicable? Respiration grew more and more contracted and imperfect, until after eleven o'clock on the Sunday night, when he expired without a struggle.

"Think of a man being, within the brief space of little more than twelve hours, deprived of eighty, or perhaps ninety, ounces of blood; afterwards swallowing two moderate American doses of calomel, which were accompanied by an injection; then five grains of calomel, and five or six grains of emetic tartar; vapours of vinegar and water frequently inhaled; blisters applied to his extremities; a cataplasm of bran and vinegar to his throat, upon which a blister had been already fixed: is it surprising that, when thus treated, the afflicted general, after various ineffectual struggles for utterance, at length articulated a desire that he might be allowed to die without interruption!

"To have resisted the fatal operation of such Herculean remedies, one should imagine that this venerable old man ought at least to have retained the vigor of his earliest youth.

"A British physician may be deemed not competent to ascertain the propriety of transatlantic practice; the current of blood, in the inhabitants of the new world, may bear some proportion to the current of its rivers; in that case, the medical treatment ought likewise to be conducted upon a larger scale.

"But this is a subject not proper for levity; it is a serious and solemn subject; and it is on that account that I have been induced to make the few preceding observations."

We leave the reader to make his own remarks on these objections. Dr. Reid's opinion of large bleedings in this disease will be found to agree with the sentiments of some other practitioners whose ideas have been noticed in the foregoing pages.

Sp. IV. CYNANCHE PHARYNGEA.

Cynanche pharyngea. *Sauv.* sp. 6. *Eller de cogn. et cur.* sect. 7.

Anginae inflammatoriae, sp. 4. *Boerb.* 804.

This is not materially different from the cynanche tonsillaris; only that the inflammation is said to begin in the pharynx, though Dr. Cullen says he never knew an instance of it. The symptoms are almost the same, and the cure is precisely so with that of the cynanche tonsillaris.

Sp. V. CYNANCHE PAROTIDÆA.

Cynanche parotidæa, *Sauv.* sp. 14. *Gallis* OREILLONS et OURLES, *Tissot* avis au peuple, No. 116. *Encyclopédie*, au mot *Oreillons*.

Angina externa, *Anglis* the MUMPS, *Ruffel* œcon. natur. p. 114. *Scotis* the BRANKS.

Catarrhus Bellinfulanus, *Sauv.* sp. 4.

Offervazioni di *Girol Gaspari*, Venez. 1731.

Offervazioni di *Targ. Tozzetti*, Racolta prima, p. 176.

This is a disease well known to the vulgar, but little taken notice of by medical writers. It is often epidemic, and manifestly contagious. It comes on with the usual symptoms of pyrexia, which are soon after attended with a considerable tumor of the external fauces and neck. The swelling appears first as a glandular moveable tumor at the corner of the lower jaw; but it soon becomes uniformly diffused over a great part of the neck, sometimes on one side only, but more commonly on both. The swelling continues to increase till the fourth day; but from that period it declines, and in a very few days more, goes off entirely. As the swelling of the fauces recedes, it not unfrequently happens that some tumor affects the testicles in the male sex, or the breasts in the female. These tumors are sometimes large, hard, and somewhat painful; but are seldom either very urgent or of long continuance. The pyrexia attending this disease is commonly slight, and goes off with the swelling of the fauces; but sometimes when the swelling of the testicles does not succeed to that of the fauces, or when the one or the other has been suddenly repressed, the pyrexia becomes more considerable, is often attended with delirium, and has sometimes proved fatal.

As this disease commonly runs its course without either dangerous or troublesome symptoms, so it hardly requires any reme-

dies. An antiphlogistic regimen, and avoiding cold, are all that will be commonly necessary. But when, upon the receding of the swellings, the pyrexia comes to be considerable, and threatens an affection of the brain, it will be proper, by warm fomentations, to bring back the swelling; and by the vomits (No. 1.) or (No. 2.), bleeding, or blistering, to obviate the consequences of its absence.

As a fomentation the late Dr. Morris used the following:
(No. 86.) ℞ Fomenti communis lib. ij .

Ammonii muriati unc. j .

Spiritus camphorati unc. ij .

Whilst the fomentation is hot, the muriated ammonia is to be dissolved in it, and the camphorated spirit added at the instant of its being employed.

Rubbing the swelled parts with the liniment (No. 61.) will also promote this effect. Or the following from the Pharmacopœia of St. Thomas's Hospital.

(No. 87.) ℞ Olei olivæ ziss .

Ceræ flavæ incisæ zij .

Liquefactis simul admisce,

Aquæ ammoniæ ziss . Misce fiat linimentum.

In common cases, the febrile symptoms may be resisted by:

(No. 88.) ℞ Nitri pur. gr. x .

Antim. tartar, gr. $\frac{1}{4}$ ad $\frac{1}{2}$. Fiat pulvis ter die sumend.

Costiveness may be obviated by (No. 3.) or by the *Enema salinum* of St. George's Hospital.

(No. 89.) ℞ Aquæ tepidæ lib. j .

Salis marini unc. j .

Fiat enema.

GENUS XI. PNEUMONIA.

Febris pneumonica, *Hoffm.* II. 136.

Sp. I. PERIPNEUMONIA.

Peripneumony, or Inflammation of the LUNGS.

Peripneumonia, *Sauv.* gen. 112. *Lin.* 34. *Vog.* 51. *Sag.* gen. 311.
Boerb. 820. *Juncker* 67.

Peripneumonia pura sive vera Auctorum, *Sauv.* sp. 1.

Peripneumonia gastrica, *Sauv.* sp. 11. *Morgagn.* de caus. et sed. morborum Epist. xx. art. 30, 31.

Peripneumonia catarrhalis, *Sauv.* sp. 6.

Peripneumonia notha, *Sydenh.* sect. 6. cap. 4. *Boerb.* 867. *Morgagni* de caus. et sed. Epist. xxi. 11.—15.

- Peripneumonia putrida, *Sauv.* sp. 2.
 Peripneumonia ardens, *Sauv.* sp. 3.
 Peripneumonia maligna, *Sauv.* sp. 4.
 Peripneumonia typhodes, *Sauv.* sp. 5.
 Amphimerina peripneumonica, *Sauv.* sp. 15.

Sp. II. PLEURITIS.

The *Pleurisy*, or Inflammation of the PLEURA.

- Pleuritis, *Sauv.* gen. 103. *Lin.* 27. *Vog.* 56. *Sag.* gen. 303.
Boerb. 87. *Junck.* 67.
 Paraphrenesis, *Sauv.* gen. 102. *Lin.* 26.
 Paraphrenitis, *Vog.* 55. *Boerb.* 907.
 Diaphragmitis, *Sag.* gen. 304.
 Pleuritis vera, *Sauv.* sp. 1. *Boerb.* 875. *Verna* princeps morb.
 acut. pleuritis, l. i. cap. 2, 3. *Zeviani* della parapleuritide,
 cap. 3. *Morgagni* de sed. et caus. morb. Epist. xx. art. 56.
 xxi. 45. *Wendt* de pleuritide, apud *Sandisfort*, thes. ii.
 Pleuritis pulmonis, *Sauv.* sp. 2. *Zevian.* dell. parapleur. iii.
 28, &c.
 Pleuropneumonia, pleuro-peripneumonia, peripneumo-pleuri-
 tis Anctorum. *Baronius* de pleuri-pneumonia. Ill. *Halleri*
 opuscul. patholog. obs. 13. *Morgagni* de sed. et caus. Epist.
 xx. et xxi. passim. *Cleghorn*, Minorca, p. 247. *Triller* de
 pleuritide, aph. 1, 2, 3. cap. i. 8. *Huxham*, Dissert. on pleu-
 rifies, &c. chap. i. Ill. *Pringle*, Dis. of the army.
 Pleuritis convulsiva, *Sauv.* sp. 13. *Bianch.* hist. hep. vol. i.
 p. 234.
 Pleuritis hydrothoracica, *Sauv.* sp. 15. *Morgagni* de caus. et
 sed. xx. 34.
 Pleuritis dorsalis, *Sauv.* sp. 3. *Verna*, p. 3. cap. 8.
 Pleuritis mediastini, *Sauv.* sp. 3. *P. Sal.* Div. de affec. part.
 cap. 6. *Friend*, Hist. Med. de Avenzoare.
 Mediastina, *Vog.* 52.
 Pleuritis pericardii, *Sauv.* sp. 5. *Verna*, p. iii. cap. 9.
 Parapleuritis, *Zeviani* della parapleuritide.
 Pleurodyne parapleuritis, *Sauv.* sp. 19.
 Paraphrenesis diaphragmatica, *Sauv.* sp. 1. *De Haen*, Rat. med.
 i. 7. iii. p. 31.
 Paraphrenesis pleuritica, *Sauv.* sp. 2.
 Paraphrenesis hepatica, *Sauv.* sp. 3.

Under the general head of *Pneumonia*, Dr. Cullen comprehends all inflammations of the thoracic viscera, or membrane lining the inside of that cavity: as the symptoms do not sufficiently distin-

guish the seat of the affection, nor does a difference in the situation of the affected place make any difference in the cure.

1. *Description.*] Pneumonic inflammation, however various in the seat, always discovers itself by pyrexia, difficult breathing, cough, and pain in the same part of the thorax. It almost always comes on with a cold stage, and is accompanied with the other symptoms of pyrexia; though in some few instances the pulse may not be more frequent, nor the heat of the body increased beyond what is natural. Sometimes the pyrexia is from the beginning accompanied with the other symptoms; but frequently it is formed some hours before them, and particularly before the pain be felt. The pulse, for the most part, is frequent, full, strong, hard, and quick; but, in a few instances, especially in the advanced state of the disease, it is weak, soft, and at the same time irregular. The difficulty of breathing is most considerable in inspiration, both because the lungs do not easily admit of a full dilatation, and because the dilatation increases the pain attending the disease. The difficulty of breathing is also greater when the patient is in one posture of the body rather than another. It is generally greater when he lies on the side affected; though sometimes the contrary happens. Very often the patient cannot lie easy upon either side, and can find ease only when lying on the back; and sometimes he cannot breathe easily, except when in somewhat of an erect posture. The cough, in different cases, is more or less urgent or painful. It is sometimes dry, or without any expectoration, especially in the beginning of the disease; but more commonly it is, even from the beginning, moist, and the matter spit up various, both in consistence and colour, and frequently it is streaked with blood. The pain is also different in different cases, and felt in different parts of the thorax, but most frequently in one side. It has been said to affect the right side more frequently than the left; but this is uncertain, and we are sure that the left side has been very often affected. Sometimes it is felt as if it was under the sternum; sometimes in the back between the shoulders; and when in the sides, its place has been higher or lower, more forward or backward; but the place of all most frequently affected is about the sixth or seventh rib, near the middle of its length, or a little more forward. The pain is often severe and pungent; but sometimes more dull and obtuse, with a sense of weight rather than of pain. It is most especially severe and pungent when occupying the place last mentioned. For the most part it continues fixed in one part, but sometimes shoots from the side to the scapula on one hand, or to the sternum and clavicle on the other.

Dr. Cullen supposes that the disease is always seated, or at least begins, in some part of the pleura, taking that membrane in its greatest extent, as now commonly understood; that is, as cover-

ing not only the internal surface of the cavity of the thorax, but also as forming the mediastinum, and as extended over the pericardium, and over the whole surface of the lungs. But as the symptoms never clearly indicate where the seat of the disease is, there is but little foundation for the different names by which it has been distinguished. The term *pleurisy* is improperly limited to that inflammation which begins in and chiefly affects the pleura costalis. This our author thinks is a rare occurrence; and that the pneumonia much more frequently begins in the pleura investing the lungs, producing all the symptoms which belong to what hath been called the *pleuritis vera*. The word *peripneumony* has been applied to an inflammation beginning in the parenchyma, or cellular texture of the lungs, and having its seat chiefly there. But to Dr. Cullen it seems very doubtful if any acute inflammation of the lungs, or any disease which has been called *peripneumony*, be of that kind. It seems probable, that every acute inflammation begins in membranous parts; and in every dissection of persons who have died of peripneumony, the external membrane of the lungs, or some part of the pleura, has appeared to have been considerably affected. An inflammation of the pleura covering the upper surface of the diaphragm, has been distinguished by the appellation of *paraphrenitis*, as supposed to be attended with the peculiar symptoms of delirium, *risus sardonicus*, and other convulsive motions; but it is certain, that an inflammation of that portion of the pleura, and affecting also even the muscular substance of the diaphragm, has often taken place without any of the symptoms above mentioned; and neither the dissections, which have fallen under Dr. Cullen's observations, nor any accounts of dissections, support the opinion that an inflammation of the pleura, covering the diaphragm, is attended with delirium more commonly than any other pneumonic inflammation.—It is to be observed, however, that though the inflammation may begin in one particular part of the pleura, the morbid affection is commonly communicated to the whole extent of the membrane.

The pneumonic inflammation, like others, may terminate by resolution, suppuration, or gangrene: but it has also a termination peculiar to itself; namely, when it is attended with an effusion of blood into the cellular texture of the lungs, which, soon interrupting the circulation of the blood through the viscus, produces a fatal suffocation. This, indeed, appears to be the most common termination of pneumonic inflammation when it ends fatally; for upon the dissection of almost every person who has died of this disease, it appears that such an effusion had happened. From the same dissections we learn, that pneumonic inflammation commonly produces an exudation from the internal surface of the pleura, which appears partly as a soft viscid crust, often of a compact membranous form, covering every-where the surface of the

pleura, and particularly those parts where the lungs adhere to the pleura costalis, or mediastinum; and this crust seems always to be the cement of such adhesion. The same exudation shows itself also by a quantity of serous fluid commonly found in the cavity of the thorax; and some exudation or effusion is usually found to have been made into the cavity of the pericardium. It seems likewise probable, that an effusion of this kind is sometimes made into the cavity of the bronchiæ; for in some persons who have died, after labouring under a pneumonic inflammation for a few days only, the bronchiæ have been found filled with a considerable quantity of serous and thickish fluid, which must be considered rather as the effusion above mentioned, having had its thinner parts taken off by respiration, than as a pus so suddenly formed in the inflamed part. It is, however, not improbable, that this effusion, as well as that made into the cavities of the thorax and pericardium, may be a matter of the same kind with that which in other inflammations is poured into the cellular texture of the parts inflamed, and there converted into pus; but in the thorax and pericardium it does not always put on this appearance, because the crust covering the surface prevents the absorption of the thinner part. This absorption, however, may be compensated in the bronchiæ, by the drying power of the air; and therefore the effusion into them may assume a more purulent appearance. In many cases of pneumonic inflammation, when the expectoration is very copious, it is difficult to suppose that the whole proceeds from the mucous follicles of the bronchiæ; and it seems probable that a great part of it may come from the effused serous fluid just mentioned; and this too will account for the appearance of the expectoration being so often purulent. Perhaps the same thing will account for that purulent matter found in the bronchiæ, which De Haen says he had often observed when there was no ulceration in the lungs, and which he accounts for in a very strange manner, namely, by supposing a pus formed in the circulating blood.

Dr. Cullen is of opinion, that the effusion into the bronchiæ above mentioned, often concurs with the effusion of red blood into the cellular substance of the lungs to occasion the fatal suffocation which frequently terminates peripneumony: that the effusion of serum alone may have this effect: and that the serum poured out in a certain quantity, rather than any debility in the powers of expectoration, is the cause of that cessation of spitting which precedes the fatal event; for in many cases the expectoration has ceased, when no other symptoms of debility have appeared, and when, upon dissection, the bronchiæ have been full of liquid matter. Nay, it is even probable, that in some cases such an effusion may take place without any symptoms of violent inflammation; and in other cases the effusion taking place may seem

to remove the symptoms of inflammation which had appeared before, and thus account for those unexpected fatal terminations which have sometimes happened.

Pneumonic inflammation seldom terminates by resolution, without being attended with some evident evacuation. An hæmorrhagy from the nose happening on some of the first days of the disease has sometimes put an end to it; and it is said, that an evacuation from the hæmorrhoidal veins, a bilious evacuation by stool, and an evacuation of urine with a copious sediment, have severally had the same effect: but such occurrences have been rare. The evacuation most frequently attending, and seeming to have the greatest effect in promoting resolution, is an expectoration of a thick, white, or yellowish matter, a little streaked with blood, copious, and brought up without much or violent coughing. Very frequently the resolution of this disease is attended with, and perhaps produced by, a sweat, which is warm, fluid, copious, over the whole body, and attended with an abatement of the frequency of the pulse, heat of the body, and other febrile symptoms. Although, from the history now given, it appears that pleurisy and peripneumony cannot with propriety be considered as different diseases, yet it is certain that in different cases this affection occurs with an assemblage of symptoms separate and distinct. Thus even Dr. Cullen himself, in his *Nosology*, has defined pleuritis to consist in pyrexia, attended with pungent pain of the side, painful respiration, difficulty of lying down, particularly on the affected side, and distressing cough, in the beginning dry, but afterwards humid, and often with bloody expectoration. While again he has defined peripneumony to consist in pyrexia attended with a dull pain under the sternum and between the shoulders, anxiety, difficulty of breathing, humid cough, expectoration generally bloody, a soft pulse, and a tumid livid appearance of the countenance. It is highly probable, that the first of these sets of symptoms chiefly arises from a state of active inflammation, and the second from effusion. Thus, in certain cases, the symptoms may appear perfectly separate and distinct; but more frequently both inflammation and effusion are united; and thus the symptoms in both definitions are in general combined in the same patient.

2. *Causes of, and persons subject to, this disorder.*] The remote cause of pneumonic inflammation is commonly cold applied to the body, obstructing perspiration, and determining to the lungs, while at the same time the lungs themselves are exposed to the action of cold. These circumstances operate chiefly when an inflammatory diathesis prevails in the system; and therefore those principally affected with this disease are persons of the greatest vigour, in cold climates, in the winter season, and particularly in the spring, when vicissitudes of heat and cold are frequent. This disease, however, may arise in any season when such varie-

ties take place. Other remote causes also may have a share in producing this disorder; such as every means of obstructing, straining, or otherwise injuring the pneumonic organs. The pneumonic inflammation has sometimes been so much an epidemic, that it hath been suspected of depending on a specific contagion; but Dr. Cullen never met with an instance of its being contagious.

3. *Prognosis.*] In pneumonic inflammation, a violent pyrexia is always dangerous. The danger, however, is chiefly denoted by the difficulty of breathing. When the patient can lie on one side only; when he can lie on neither side, but only on his back; when he cannot breathe with tolerable ease, except when the trunk of his body is erect; when even in this posture the breathing is very difficult, and attended with a turgescence and flushing of the face, with partial sweats about the head and neck, and an irregular pulse; these circumstances mark the difficulty of breathing in different degrees; and consequently, in proportion, the danger of the disease. A frequent violent cough, aggravating the pain, is always the symptom of an obstinate disease; and as the disease is seldom or never resolved without some expectoration, so a dry cough must always be an unfavourable symptom.

The proper characteristics of the expectoration have been already laid down; and though an expectoration which has not these marks must indicate a doubtful state of the disease, yet the colour alone can give no certain prognostic. An acute pain, very much interrupting inspiration, is always the mark of a violent disease; but not of a more dangerous disease than an obtuse pain attended with very difficult respiration.

When the pains, which had at first affected one side only, shall afterwards spread into the other; or when, leaving the side first affected, they pass entirely into the other; these are always marks of a dangerous disease. A delirium coming on during a pneumonic inflammation is always a symptom denoting much danger.

When pneumonic disorders terminate fatally, it is on one or other of the days of the first week, from the third to the seventh. This is the most common case; but, in a few instances, death has happened at a later period. When the disease is violent, but admitting of resolution, this also happens frequently in the course of the first week, but in a more moderate disease the resolution is often put off to the second week. The disease generally suffers a remission on some of the days from the third to the seventh: which, however, may be often fallacious, as the disease sometimes returns again with as much violence as before; and in such a case with great danger. Sometimes it disappears on the third day, while an erysipelas makes it appearance on some external part; and if this continue fixed, the pneumonic inflammation

does not recur. If the disease continue beyond the fourteenth day, it will terminate in a suppuration, or *PHLEGIS*. The termination by gangrene is much more rare than has been imagined; and when it does occur, it is usually joined with the termination by effusion; the symptoms of the one being hardly distinguishable from those of the other.

4. *Cure.*] This must proceed upon the general plan mentioned under *SYNOCHA*; but, on account of the importance of the part affected, the remedies must be employed early, and as fully as possible: and these are chiefly directed with one of three views, viz. for obtaining a resolution of the inflammation in the thorax, for mitigating the urgent symptoms before a resolution can be effected, and for counteracting or obviating the consequences of the disease. Venesection is the remedy chiefly to be depended on; and the quantity taken away ought in general to be as large as the patient's strength will allow. The remission of pain, and the relief of respiration, during the flowing of the blood, may limit the quantity to be then drawn; but if these symptoms of relief do not appear, the bleeding should be continued to a considerable extent, unless symptoms of a beginning syncope come on. It is seldom that one bleeding, however large, will cure this disease; and though the pain and difficulty of breathing may be much relieved by the first bleeding, these symptoms commonly, and after no long interval, recur, often with as much violence as before. In this case the bleeding is to be repeated, even on the same day, and perhaps to the same quantity as before. Sometimes the second bleeding may be larger than the first. There are persons who, by their constitution, are ready to faint even upon a small bleeding; and in such persons this may prevent the drawing so much blood at first as a pneumonic inflammation may require; but as the same persons are found to bear after bleedings better than the first, this allows the second and subsequent bleedings to be larger, and to such a quantity as the symptoms of the disease may seem to require.

Bleedings are to be repeated according to the state of the symptoms, and they will be more effectual when practised in the course of the first three days than afterwards; but they are not to be omitted though four days of the disease may already have elapsed. If the physician has not been called in time, or the first bleedings have not been sufficiently large, or even though they should have procured some remission, yet upon the return of the urgent symptoms, bleeding may be repeated at any time within the first fortnight, or even after that period, if a suppuration be not evident, or if after a seeming solution the disease shall have returned.

With respect to the quantity of blood which may be taken away with safety, no general rules can be given; as it must be very different according to the state of the disease, and the constitution

of the patient. In an adult male of tolerable strength, a pound avoirdupois of blood is a full bleeding. Any quantity above twenty ounces is a large, and any quantity below twelve is a small, bleeding. An evacuation of four or five pounds, in the course of two or three days, is generally as much as most patients will bear; but if the intervals between the bleedings, and the whole of the time during which the bleedings have been employed, have been long, the quantity taken upon the whole may be greater.

When a large quantity of blood hath been taken from the arm, and it is doubtful if more can be taken in that manner with safety, some blood may still be taken by cupping and scarifying. This will especially be proper, when the recurrence of the pain, rather than the difficulty of breathing, becomes the urgent symptom; and then the cupping and scarification should be made as near as possible to the pained part.

An expectoration sometimes takes place very early in the disease; but if the symptoms continue urgent, the bleedings must be repeated notwithstanding the expectoration: but in a more advanced state, and when the symptoms have suffered a considerable remission, we may then trust the cure to the expectoration alone. It is not observed that bleeding, during the first days of the disease, stops expectoration; on the contrary, it hath been often found to promote it; and it is only in a more advanced state of the disease, when the patient has been already exhausted by large evacuations and a continuance of his illness, that bleeding seems to put a stop to expectoration; and even then, this stoppage seems not to take place so much from the powers of expectoration being weakened by bleeding, as by its favouring the serous effusion in the bronchiæ, already taken notice of.

Besides this bleeding, every part of the antiphlogistic regimen ought here to be carefully employed: the patient must keep out of bed as much as he can bear; must have plenty of warm diluting drinks, impregnated with vegetable acids, accompanied with nitre or some other cooling neutral salt; and the belly also ought to be kept open by emollient clysters or cooling laxative medicines. Vomiting in the beginning is dangerous; but in a somewhat advanced state of the disease emetics have been found the best means of promoting expectoration. Fomentations and poultices to the pained part have been found useful; but blistering is found to be much more effectual. A blister, however, ought not to be applied till at least one bleeding hath been performed, as venesection is less effectual when the irritation of a blister is present. If the disease be moderate, a blister may be applied immediately after the first bleeding; but in violent cases, where it may be presumed that a second bleeding may soon be necessary after the first, it will be proper to delay the blister till after the second bleeding, when it may be supposed that the irritation occasioned by the

blister will be over before another bleeding becomes necessary. It may frequently be of use in this disease to repeat the blistering; and in that case the plasters should always be applied somewhere on the thorax, for when applied to more distant parts they have little effect. The keeping the blistered parts open, and making what is called a *perpetual blister*, has much less effect than a repeated blistering.

Many methods have been proposed for promoting expectoration, but none appear to be sufficiently effectual; and some of them, being acrid stimulant substances, are not very safe. The gums usually employed seem to be too heating; the squills less so; but they are not very powerful, and sometimes inconvenient, by the constant nausea they occasion. The volatile alkali may be of service as an expectorant, but it ought to be reserved for an advanced state of the disease. Mucilaginous and oily demulcents appear to be useful, by allaying that acrimony of the mucus which occasions too frequent coughing; and which coughing prevents the stagnation and thickening of the mucus, and thereby its becoming mild. The receiving into the lungs the steams of warm water, impregnated with vinegar, has often proved useful in promoting expectoration; and, for this purpose, the machine called the *inhaler*, invented by Dr. Mudge of Plymouth, may be of great service. But of all others, the antimonial emetics, given in nauseating diseases, promise to be the most powerful for promoting expectoration. The kermes mineral hath been greatly recommended; but doth not seem to be more efficacious than emetic tartar or antimonial wine; and the dose of the kermes is much more uncertain than that of the others.

Dr. Fordyce, after directing the use of the lancet, makes the following remarks on the cure of peripneumony.

Purging with strong purgatives is improper in inflammations of the thoracic viscera of the phlegmonous kind, but the body is to be kept open by laxatives.

After bleeding from the skin of the breast, we should produce a free circulation in the other parts by (No. 25.) or the following:

(No. 90.) ℞ Aq. menthæ sativæ ℥iss.

Sal. nitr. ʒj. ad ʒij. vel Sal. Alk. V. Fix. Succ.

Limon. satur. ʒj. vel Aq. ammon. acet. ʒß.

Syrup. Limon. ʒij. M. Ft. Haust. quantà vel sexta
quâque horâ sumend.

Inflaming another part is of service, by rubbing the following on the side:

(No. 91.) ℞ Olei olivæ ʒj.

Aquæ ammoniac puræ ʒij. ad ʒj.

Camphoræ gr. xxx. Alace fiat Linimentum.

Where blistering is desirable, the following formula of Dr. Nankivel may be substituted:

(No. 92.) \mathcal{R} Linim. saponis comp. \mathfrak{z} iss.
Tinct. cantharid. \mathfrak{z} ss. Misce.

Increasing the secretion from the mucous glands, by stimulants, when phlegmon is not present, may be attempted by

(No. 93.) \mathcal{R} Aq. Puleg. \mathfrak{z} ij β .
Oxymel. Scil. \mathfrak{z} j. ad \mathfrak{z} ij.
Aq. Menth. Piper. \mathfrak{z} j.
M. Ft. Haust. Cap. quartâ quâque horâ.

(No. 94.) \mathcal{R} Aq. Puleg. \mathfrak{z} ij β .
Gum. Ammon. gr. x. ad xv.
Syr. Limon. \mathfrak{z} ij.
M. Ft. Haust. Cap. ut supra.

Dr. Fordyce directs us to defend the mucous membrane from the salts contained in the *mucus* so secreted, with mucilaginous or oily medicines.

(No. 95.) \mathcal{R} Amygd. decort. \mathfrak{z} j.
Gum. Arabici \mathfrak{z} ij β .
Mellis \mathfrak{z} iv.
Aq. Font. \mathfrak{t} bij.
M. Ft. S. A. Emulsiô—Bibat poculum frequenter.

Or the following may be given :

(No. 96.) \mathcal{R} Syrupi ex althæa
Olei Amygdal. a a \mathfrak{z} j.
Cons. Cynosbat. \mathfrak{z} ss. Misce fiat Linctus.
Capiat coch. unum parvulum frequenter.

Dr. Saunders recommends the following formulæ to be employed according to circumstances :

(No. 97.) \mathcal{R} Mannæ \mathfrak{z} j.
Mucil. Arabici gummi
Ol. Amygdal.
Syr. Succ. Limon. a a \mathfrak{z} ij. Misce fiat Linctus, cujus
capiat minutum cochlearium pro necessitate.

(No. 98.) \mathcal{R} Nitri purif. in pulv. trit. \mathfrak{z} j.
Lactis amygdal. \mathfrak{z} vij.
Solve conterendo, ut fiat Mistura. Sumantur cochlearia
iij. singulis quadri-horis.

(No. 99.) \mathcal{R} Nitri purificati gr. x.
Aquæ distillatæ
Mellis acetat. utriusq. \mathfrak{z} v.
Acid. vitriol. dilut. \mathfrak{z} j. Misce.
Sit pro haustu, sexta quaque hora fumendo.

(No. 100.) \mathcal{R} Syr. papaveris alb.
Cons. Cynosbat.
Ol. Amygdal. utriusq. \mathfrak{z} j.
Acid. vitriol. dilut. \mathfrak{z} j. Misce.
Sit Linctus cujus cochleare minimum sæpius in die paulatim delingatur.

(No. 101.) R Sperm. Ceti ℥ij.

Vitell. ovi unius

Bene terantur simul; tum paulatim addantur, Aq. Cinnam.

Aquæ distill. a a ℥ij.

Syr. tolutan. ℥ss. ut fiat.

Emulsio cujus cochlearia quatuor ter quaterve indies adhibeantur.

The following recipe of Dr. Saunders seems calculated for the advanced stages of the disease, when expectoration is to be promoted:

(No. 102.) R Rad. Senek. contus. ℥j.

Aquæ ferventis lib. j.

Decoque ad dimidiam et cola; dein adde Sp. Piment. ℥j.

Syr. Simpl. ℥ss. Dentur coch. tria ter quotidie.

Though this disease often terminates by a spontaneous sweating, this evacuation ought not to be excited by art, unless with much caution. When, after some remission of the symptoms, spontaneous sweats arise, they may be encouraged: but it ought to be without much heat, and without stimulant medicines. If, however, the sweats be partial and clammy only, and a great difficulty of breathing still remain, it will be very dangerous to encourage them.

Physicians have differed much with regard to the use of opiates in pneumonic affections. It appears, however, that in the beginning of the disease, and before bleeding and blistering have produced some remission of the pain, and of the difficulty of breathing, opiates have a bad tendency, by their increasing the difficulty of breathing and other inflammatory symptoms. But in a more advanced state of the disease, when the difficulty of breathing has abated, and when the urgent symptom is a cough, proving the chief cause of the continuance of pain and want of rest, opiates may be employed with great advantage and safety. The interruption of the expectoration which they seem to occasion, is for a short time only; and they tend often to promote it, as they occasion a stagnation of what was by frequent coughing dissipated insensibly: and therefore give the appearance of what physicians have called *concocted matter*.

Dr. Saunders joins antimony with the anodyne in the following manner:

(No. 103.) R Extract. papav. alb. gr. iij.

Pulv. antimonial. gr. ij.

Fiat pilula nocte capienda.

Opium combined with calomel has of late been highly extolled in this and other inflammatory diseases by Dr. Hamilton of Lynn-Regis: who has given a full account of the success attending his practice with this remedy, for the space of sixteen years, in the

ninth volume of the Edinburgh Medical Commentaries. And since his recommendation, the same remedy has often been employed by others with great benefit.

As we shall have occasion hereafter to refer to Dr. Hamilton's paper, we shall here introduce the account he gives of his *general mode* of employing these remedies.

" Blood was directed to be taken away in the beginning of the disease, in quantity proportioned to the violence of the inflammatory symptoms, and the age and constitution of the patient. And the bowels were next ordered to be emptied, either by clyster, or (more commonly) by an eccoprotic purgative. After which, a composition, consisting of from five to one grain of calomel, and from one to one-fourth grain of opium (with any conserve in a bolus), in proportion to the strength and age of the patient, was administered every six, eight, or twelve hours, as the degree of inflammation, or the threatening aspect of the distemper, seemed to require; and a plentiful dilution with barley-water, or any other weak tepid beverage, was at the same time strictly enjoined. After taking three or four doses of this medicine, in the course of twenty-four hours, the patient was generally greatly relieved; and in twenty-four more, the disease commonly gave way, and soon terminated. But if not relieved in the first twenty-four hours, and the high inflammatory symptoms continued, with little or no abatement (which was rarely the case), more blood was taken away, and this mercurial composition was directed to be more frequently given, and continued until the distemper resolved, either by sweating, purging, or more commonly both, or by a ptyalism being raised. I have observed a great variety in the effects of mercury thus administered. When the patient sweated or purged much, the salivary glands did not become soon affected. But when the evacuations by the intestines and skin were not copious, the spitting was the sooner excited. And I have seen large quantities of mercury given for a continuance, without affecting the mouth in the least, or producing any very large visible evacuation, yet the patient was greatly relieved. A little increase of urine, indeed, was all that was sometimes to be seen; and we may conjecture, that the insensible perspiration might sometimes be increased also. But be that as it may. If this method of cure was employed early in the disease, the patient's was soon accomplished, whatever was the operation of the mercury. But if employed late, it was attended with more uncertainty, the case was rendered more doubtful, and the recovery was more slow, but most commonly the soonest when the salivary glands were affected.

" If the fever was violent, accompanied with a dry contracted arid skin, emetic tartar, and sometimes camphor, were added. And I beg leave here to observe, that I never found any medicine,

either in a simple or aggregate state, produce so certainly, speedily, and effectually, a relaxation of the skin, and a plentiful discharge from its pores, as a composition of calomel, opium, emetic tartar, and camphor, which has also the advantage of increasing the evacuations by stool and urine : from which it would appear, that the glandular secretions, in general, are most essentially promoted by this composition.

“ When I have been consulted in an advanced period of any inflammatory disease, I have frequently found it necessary to direct blisters, as powerful auxiliaries to this internal method of cure, to be applied to the side, sternum, hepatic region, extremities, &c. as the nature and seat of the distempers, or urgency of the case, seemed to require ; but very seldom to the head, because, from repeated experience, I have long found, that the inflammation of the skin, and subsequent discharge, from blisters on the lower extremities, have, in many inflammatory diseases (particularly in the phrenitis and paraphrenitis), afforded much greater relief than when they had been applied to the head. But, when calomel and opium had been employed early in the disease, it was very rarely, and in very bad cases indeed, that blisters were found to be requisite.

“ After the inflammation began to resolve, and the distemper appeared to be on the decline, the Peruvian bark, in decoction or powder, was directed to be taken with great advantage*, and a suitable portion of wine was ordered to be added to a proper diet, in order to recruit the debilitated system. It is almost needless to add, that the bowels were kept soluble during the cure, by some gentle purgative, if that purpose was not sufficiently answered by the mercurial medicine ; or to observe, that acids were avoided for obvious reasons.”

VOMICA, or *Abscess* of the *Lungs*.

Vomica, *Boerb.* 835. *Junck.* 35.

Pleurodyne vomica, *Sauv.* sp. 21.

This sometimes follows pneumonia, though the case is not frequent. The symptoms of it so much resemble the phthisis, that it can most properly be treated of under that head.

* Particularly in the acute rheumatism.

EMPYEMA.

This is another consequence of a pneumonia terminating unfavourably, and is occasioned by the effusion of a quantity of purulent matter into the cavity of the thorax, producing a lingering and painful disorder, very often incurable.

1. *Description.*] The first sign of an *empyema* is a cessation of the pain in the breast, which before was continual: this is followed by a sensation of weight on the diaphragm; and a fluctuation of matter, sometimes making a noise that may be heard by the by-standers: the acute fever is changed into a hectic, with an exacerbation at night: a continual and troublesome dry cough remains. The respiration is exceedingly difficult, because the lungs are prevented by the matter from fully expanding themselves. The patient can lie easily on that side where the matter is effused, but not on the other, because then the weight of the matter on the mediastinum produces uneasiness. The more the hectic heat is augmented, the more is the body emaciated, and its strength decayed. In some there is danger of suffocation when they stoop down, which goes off when they alter that posture of the body; and in some there is a purulent spitting.—These symptoms are accompanied with great anxiety, palpitations of the heart, and faintings. Sometimes the patients have a sensation like a hot vapour ascending from the cavity of the thorax up to the mouth. Others, in a more advanced state of the disease, have a putrid taste in the mouth. At the same time, profuse night-sweats waste the body, and greatly weaken the patient. The face at first grows red on that side where the matter lies, at last the Hippocratic face comes on, and the eyes become hollow. The pulse, especially on the affected side, is quick, but more frequently intermitting. Sometimes the nails are crooked, and pustules appear on the thorax; and frequently, according to the testimony of Hippocrates, the feet swell, and on the affected side of the breast there is an inflation and swelling of the skin.

2. *Causes. &c.*] An *empyema* may arise either from the bursting of a vomica of the lungs, or from a suppuration taking place after the inflammatory stage of the pneumonia; or sometimes from a suppuration in the case of a quinsy, when the inflammation had extended to the aspera arteria, from whence arises a kind of bloody spittle, and the patients are afflicted with an *empyema*, unless they die on the seventh day of the disease, according to the observation of Hippocrates. It may arise also from external violence, as wounds of the thorax, &c. blood extravasated, corrupted, or changed into pus. Like the vomica, it is a rare disease, but may attack all those subject to pneumonia.

3. *Prognosis.*] Very few recover after an empyema has been once formed, especially if the operation of paracentesis be neglected. After this operation is performed, if a great quantity of bloody fetid pus be discharged, if the fever continue, and if the patient spit up a purulent, pale, frothy, livid, or green matter, with a decay of strength, there is no hope: but when a small quantity of pus, of a white colour, not very fetid, is discharged; when the fever and thirst presently cease, the appetite returns, and fæces of a good consistence are discharged, the strength also returning in some degree; there is then hope of a perfect recovery. If the matter be not dried up in seven weeks' time, the disease readily changes to a fistulous ulcer, which is very difficult to cure. An empyema affecting both sides of the thorax is more dangerous than that which affects only one.

4. *Cure.*] This consists in evacuating the purulent matter contained in the cavity of the thorax, which is best done by the operation of paracentesis, to be performed by a surgeon. The best mode of doing it, is to draw the lax skin as much upwards as possible before the puncture is made; so that after the fluid is evacuated, the skin may form a valve, which should afterwards be closed with adhesive plaster and a proper bandage. The same internal medicines are to be given as in a phthisis.

In the Memoirs of the Medical Society of London, we find the following case of an abscess of the breast successfully treated, by Dr. Farquharson, of Edinburgh.

"Mr. William Lowndes, aged eight, a young gentleman of a strong constitution and very active disposition, on the evening of the 9th of June, 1786, while overheated at play, fell from a considerable height into a deep river, about two hundred yards from his father's house. He struggled much, and was twice under water. In about five minutes he was taken out, carried home, stripped, put to bed, rubbed dry, and drank some brandy and water.

"He slept well that night, was in perfect health next day, and eat his dinner with uncommon appetite. About seven o'clock in the evening he complained of being very drowsy, went to bed, and slept some hours. On waking he was seized with slight shiverings and sickness at stomach, followed by severe retching and vomiting, which continued during the night, and increased in the morning,

"June 11th, about eight o'clock in the morning, Mr. White, surgeon, and I, were called to see him. He complained of great nausea and headach; but he had little thirst: his tongue was not furred, nor was his skin much hotter than ordinary: his pulse was soft and regular, and beat 120 in the minute.

"We ordered him a vomit immediately, a large dose of saline mixture every two hours, and a diaphoretic anodyne-draught at

bed-time. Next morning we found him considerably easier; the vomiting had ceased, and his pulse had fallen to 90. However, for the three following days he grew worse; his pulse rose to 126, and was feeble and unsteady; his thirst increased; his skin became hot and dry; his vomiting returned; he passed a great quantity of urine, mostly thin and pale, though sometimes thick and high coloured; and he had a great degree of subfukus tendinum.

"We ordered the saline draughts to be more frequently repeated; diluting drinks to be used in great quantity; the diaphoretic draughts to be exhibited at bed-time, and proper laxatives to be given occasionally.

"June 15th, he began to recover, and his pulse again fell to 90, when he was seized with a violent pain in the left breast immediately under the nipple. This lasted only half an hour the first day, but returned with greater violence the day after; his pulse rose to 120, and he breathed with great difficulty; he likewise complained of his belly, which was sometimes considerably swelled.

"These complaints yielded in some degree to bleeding, fomentations, blisters, diaphoretics, and laxatives; but there still remained such quickness of pulse, such pain in the left side, such difficulty of breathing, and such anxiety, as indicated some dangerous affection of the breast. To remove this, the saline mixture, saline laxatives, worm medicines, antimonials, the warm bath, milk diet, country air, and gentle exercise, were tried in vain.

"July 15th. All the symptoms now indicating the presence of some fluid in the thorax, Dr. Stevenson of Glasgow was consulted. On examining our young patient we perceived a considerable swelling on the left side of his breast, which pointed between the sixth and seventh ribs, about half way between the sternum and spine. The pulsation of his heart could be distinctly felt on his right side; his pulse was at 146; his skin was hot and remarkably dry, and he was much afflicted with a hard tickling and almost constant cough. He likewise complained of violent pain in the left side of his neck and left arm. The muscles of that side of his neck were very rigid, and the veins turgid. He also leaned so much to the left side that he had the appearance of being deformed.

"As his urine was scanty, his belly swelled, and his thirst considerable, there was reason to suspect a complication of hydrothorax with ascites; and with a view to this, Dr. Stevenson ordered small doses of calomel at proper intervals, with a sufficient quantity of crystals of tartar, to give him two or three stools a-day; at the same time an anodyne embrocation was ordered for his neck and arm.

" By persisting in this course for some time he became easier; his urine increased in quantity, depositing a great deal of brawny sediment; and the swelling of his belly disappeared. But as the quickness of pulse, the cough, and difficulty of breathing, still continued; as the pulsation of the heart on the right side had become more perceptible, while he could not lie, even for a moment, on that side, without danger of immediate suffocation; and as the tumor between the ribs had increased; an operation was determined upon, and a poultice ordered, that the integuments might become thinner.

" August 7th. Mr. White made an opening into the cavity of the thorax through the most depending part of the tumor. A pound of pure bland pus was discharged immediately, and in about three hours as much more. A small linen tent was introduced to serve as a conductor to the matter; and his side was dressed in the ordinary manner.

" Every symptom was now much relieved; his pulse came down to 116; the pulsation of his heart on the right side disappeared; he slept three hours on that side the second night after the operation; the cough left him; he breathed without difficulty, and the pain of his neck and arm became moderate. A small silver canula was introduced into the wound to give the matter free vent; his belly was ordered to be kept open by occasional doses of crystals of tartar, and a milk diet was strictly enjoined.

" Things now wore a promising aspect; the matter, though discharged in great quantity, was perfectly mild and free from air; and he seemed to be gaining strength very fast, when, on the fifth day from the operation, he became feverish, hot, and restless; his cough and difficulty of breathing returned; the matter acquired an offensive smell, and his pulse rose to 140. He now felt the silver canula so uneasy that we were obliged to withdraw it, and use only a bit of bougie. However, after taking a dose of salts, and increasing the quantity of the crystals of tartar, so as to keep his belly very open, the matter became more mild, his pulse fell to 120, and the fever abated much. He was now ordered asses' milk, which however could not be procured for him in sufficient quantity.

" Although his pulse was seldom under 120, yet he mended slowly till about the sixth of September, when he began to complain of shivering fits and an aggravation of all his former symptoms. There now appeared a considerable inflamed tumor, about two inches higher than the wound, which was discutted in a few days by poultices and occasional laxatives; and all the symptoms were much relieved by a great discharge of matter from the wound after a violent fit of coughing.

He continued to recover till the 22d, when the shiverings returned, and a second tumor appeared in the same spot as the first.

Every precaution was taken to discontinue it as formerly, but without effect, as, on the 27th, it burst and discharged a considerable quantity of matter, and he again became easier.

“ He was now ordered the bark with proper laxatives; demulcents for his cough; the milk and vegetable diet were continued, and he drank asses’ milk in plenty. This course agreed with him for some time; he became stronger, could walk with more freedom, and even bear the motion of a carriage: but about the beginning of October the matter became fetid, although there was a considerable discharge from both wounds; his pulse continued at 120 in the morning, and he had a hectic paroxysm every afternoon, when his pulse rose to 130.

“ At this time Dr. Lettsom and Mr. John Hunter, of London, were consulted. Dr. Lettsom approved of the bark, but wished it to be conjoined with a saline effervescent draught to prevent it from increasing the fever. He ordered cicuta to be exhibited in as large doses as the patient’s stomach would bear. At the same time he recommended a trial of a tepid bath of sea water, heated to 85 or 90 degrees, every other day, or as often as the patient’s strength could bear it. He wished some light animal food to be given as soon as the state of the fever would admit of it.

“ Mr. John Hunter was of opinion that nature should be as little interfered with as possible; and that neither linen tent nor canula was necessary, if the matter passed off freely; he approved of these, however, if at any time the matter was in danger of being confined for want of a proper outlet. In case of formation of new abscesses he recommended poultices.

“ At first the effervescent draughts disagreed with the patient’s stomach, and puked him in the night, but afterwards he felt no inconvenience from them. He was now allowed some weak broth and a little light animal food at dinner; at the same time the strictest attention was paid to the regulation of his diet.

“ About this time he was put into a tepid bath of sea water, heated to 88 degrees, every other night; this brought off a great quantity of matter, lowered his pulse, and procured rest.

“ He now became so much stronger that he could walk about a great deal without difficulty. The matter, however, at last became so thick that very little of it was discharged unless he either coughed, sneezed, or cried; this occasioned the formation of another abscess, which burst about an inch above the second opening.

“ Nov. 4th. Mr. Bell of Edinburgh was consulted. He was decidedly of opinion that the principal symptoms arose from the matter being pent up; and therefore advised that an opening should be made large enough to admit of the matter being discharged with freedom; and he thought this would be easiest done by laying the three openings into one. However, if the matter still appeared to be confined, he thought it expedient to make a

new opening between two of the inferior ribs, in order to procure as depending a drain as possible. If every other method failed he advised a canula to be introduced of sufficient length to reach the bottom of the cyst. He approved of the bark being continued, and thought a little more animal food might prove serviceable.

“ Nov. 7th. Mr. White laid the three openings into one; a good deal of matter and some blood came off immediately, and for several days a free discharge was kept up, which brought down his pulse from 136 to 112. He was now put on a fuller diet, and it agreed with him better than formerly; he gained strength and flesh daily; but the healing process now went on so fast, that, notwithstanding escharotics were applied daily to the wound, it was almost constantly in danger of being choked up by the fresh granulations; and every five or six days an accumulation of matter raised his pulse to 140, and gave him great uneasiness, till a fit of coughing, sneezing, or crying, forced it off.

“ Dec. 3d. Mr. White enlarged the opening considerably, which, by giving vent to the pent-up matter, relieved all the symptoms for several weeks, and brought down the pulse to 104 in the morning, yet he still had an evening exacerbation which raised the pulse to 120.

“ About the beginning of the year 1787 our patient caught cold by standing some hours on the ice; this, however, yielded to the common remedies, and produced no bad effects; on the contrary, the cough brought off a great quantity of matter, and assisted in keeping the external wound open.

“ From time to time we had the benefit of Dr. Lettsom's and Dr. Stevenson's advice, and their prescriptions were applied as far as the circumstances of the case would admit. The medicines, diet, warm bath, and exercise, were regulated according to our patient's situation; and every thing that depended on the physician's art succeeded according to our wishes: he now recovered his strength and flesh surprisingly; his appetite returned; he grew straighter; slept well, and could bear the motion of a carriage, walk, or ride, without any inconvenience; yet all our industry in applying escharotics, and using other methods, could not prevent the matter from accumulating frequently and producing the usual train of bad symptoms. There was now an absolute necessity of either making a new opening between two of the inferior ribs, or of introducing a canula of sufficient length to reach the bottom of the cyst, that there might be a constant free discharge of the matter, so that the cyst might contract and the sides of it adhere.

“ As Mr. Bell had formerly advised these measures in very strong terms, he was called to see our patient on the 28th of May. On examining his side with a probe he found the cyst, though narrow, near five inches deep, and had reason to suspect

that one of the ribs was carious. He ordered a long leaden canula to be introduced into the wound; and, while it was repairing, ordered a bougie to be used, which was to be frequently withdrawn to allow the matter to be freely discharged.

"In a few weeks after the introduction of the tube a surprising change took place; the hectic symptoms disappeared; his pulse fell to 100; he recovered his shape perfectly; his appetite increased so much that we were obliged to lower the quality of his food; he could use the most violent exercise, and could lie in bed on either side, and his head off the pillow, without difficulty. In short the discharge lessened rapidly, and by shortening the canula gradually the sore healed from the bottom without any exfoliation of the carious rib, or any accident whatever, except our patient's catching cold on his return from Edinburgh, whither he had gone to wait on Mr. Bell about the middle of August. Although the cold increased the discharge for a few days, yet it yielded to the common remedies, and the cure went on without interruption. By the end of September the canula was withdrawn, and the wound completely cicatrized.

"Since that time he has continued in perfect health; has regained his lost growth, and takes as great a share of the most active diversions, such as dancing, leaping, running, and wrestling, with as much ease to himself as any boy of his age.

"I must here remark, that, during the whole course of this tedious case, our prescriptions were completely fulfilled, and our directions punctually obeyed by the patient's parents, particularly by his excellent mother, who, with a self-denial and perseverance highly worthy of imitation, nobly sacrificed every pleasure that a sociable disposition and wealth could procure, and dedicated every moment that could be spared from the care of the younger part of her family to the melancholy task of nursing her sick son; and he has now the pleasure of reflecting, that she has contributed in no great a degree to rescue, from almost certain death, a child who promises to be a comfort to his family, and a valuable member of society."

From the same work we select the following history of an empyema which terminated fatally, by Dr. Lettsom. Alluding to the case just related, the symptoms of which, it seems, were so analogous to those of the present, that he once expected a favourable termination, the doctor says,

"The disease of the present subject commenced on the 27th of April, 1795, at the age of seven years. Previously to this time, he was a fine grown healthy boy, fond of exercise, and appeared at his age rather athletic than otherwise. He used to eat heartily, and with little mastication; which sometimes demanded evacuants, and cooling medicines; but besides these, little attention was requisite. He was very well on the preceding day of

attack, and had dined with his parents, perhaps with indulgence of appetite; however, on that evening, after being taken a little distance, as usual, to his school, he felt indisposed, and early in the morning of the 27th there was so much oppression about the stomach, as to induce the surgeon who attended, to administer an emetic; during the operation of the emetic much indigested matter was discharged, and a considerable quantity of ropy mucus, with some streaks of blood. He was on the same day removed to London again, and in the evening I visited the patient, whom I found troubled with cough, pains of the stomach, dyspnoea, a costive body, and a high degree of fever, with vomiting of blood occasionally. A laxative medicine was immediately given, blood was taken from the arm, and cooling medicines, and fluids as nourishment, were recommended.

“ It would be useless to enumerate the various minutiae attending this tedious case. The expectoration of blood continued for many days, although a rigid perseverance in antiphlogistic remedies and diet, with occasional bleeding from the arm, and blistering the sternum, were adopted; the pulse seldom fell under 120 strokes in a minute; the difficulty of breathing was diminished, but not removed, and the cough was frequent, sometimes with expectoration of mucus, but not latterly of blood.

“ Towards the conclusion of May, the patient had become extremely weak, and the pulse seldom under 140 in a minute; the breathing was more difficult, and every symptom of approaching dissolution was presented. About this time an enlargement of the left side of the thorax became preceptible; it gradually increased, and at length appeared to Mr. Blicke, surgeon of Bartholomew’s hospital, who now attended, to be likely to suppurate. On the 9th of June it was so prominent, and a fluctuation of matter so obvious, that he judged it requisite to make an incision between the sixth and seventh rib into the tumor; it was succeeded by a discharge of about a pint and a half of pus.

“ Although the debility remained the same, the breathing was not so laborious; the pulse became slower, and a fairer prospect of recovery presented. Day after day the symptoms of danger diminished; the purulent discharge was, however, seldom less than two large spoonful a day; and sometimes, without any change in the complaints, it increased to a quarter of a pint. This quantity, at least, was discharged about the beginning of July. On the next day, there oozed through the opening a little mucus only; and from this period, the discharge greatly diminished; frequently, however, it was purulent, though rarely in any considerable quantity, and in August it was scarcely perceptible; the child was now able to walk out. The opening was occasionally enlarged from a tendency to heal; to prevent

it, a little canula, or a doffel of lint, was introduced. Air, in the act of inspiration and expiration, constantly rushed in and out through the perforation, with more or less velocity; it was sometimes so considerable, as to extinguish a small candle upon coughing.

"During the autumn of 1795, and the winter of 96, the health of the child was considerably reinstated; he recovered flesh and strength; the appetite was good, and the spirits chearful; but the breathing was not so free as natural, although he could lie down in any position; nor was the pulse so calm as in health; it was under 100, but rarely 70, and occasionally quicker.

"The disease was accompanied with but a slight cough in general; on taking cold it was, however, sometimes very troublesome, though little expectoration resulted.

"In the spring of 1796, the wound continued to ooze out a little purulent discharge, the pulse was rather quicker, and frequent slight feverish symptoms occurred; when these were mitigated, the debility continued, or rather augmented. It was hence thought advisable, in the summer of 1796, to try sea air and tepid sea-bathing, and he was removed from the vicinity of London to Ramsgate, for this purpose.

"It would not, I presume, be essential here to detail the various remedies exhibited during a long and painful illness, not only under my immediate direction, but also in conjunction with Dr. James Sims and Dr. Latham, with the unremitting care of Mr. Midford. During the inflammatory state of the disease, bleeding, local and general, were adopted, with laxatives, and a general antiphlogistic treatment, with respect to diet, as well as medicine. Afterwards alteratives, such as mercurials, and cicuta, were variously exhibited, with neutral salts and antimonials. In the state of debility the Peruvian bark, solutions of steel, and also of myrrh, were employed. External general bathing and local fomentations were recommended.

"These were varied according to the symptoms of fever, of dyspnœa, debility, and other circumstances of the patient.

"On the 22d of June he was first seen by Dr. Powell, then on the spot, and from his notes the following history of the progress, fatal termination of the disease, and subsequent dissection, are taken.

"He was now much emaciated, and so weak, as scarcely to be able to walk across a room; his breath short, and any exertion brought on fits of coughing, from which he was generally free during the night; a constant sensation of huskiness in the throat; the face had a sort of preternatural fulness, and the lips and fingers a purple tinge, particularly before coughing; this, however, varied much in its degree, and sometimes did not exist at all. Pulse not less than 120, and very small. Tongue very

tender, and covered with irregular patches of a white crust, but this might partly depend on the teeth, which were rugged and bad. He lived almost entirely on asses' milk. Body costive. No regular heat or perspiration like hectic, but occasional flushings, and especially in the face. The wound still discharged small quantities of sweet and healthy pus.

"As considerable heat and costiveness had attended the use of small doses of opium for some days previous to this time, cicuta was substituted for it, and its dose was increased to gr. v. thrice a-day, with evident advantage, as far as the cough and huskiness were concerned, till July 10, when he thought it unpleasant, and that it occasioned sickness, and therefore refused to continue it. He was not grown weaker, and his appetite was improved, for he wished for animal food, and no objection appeared to indulging him; nor did it produce any inconvenience, except that a violent fit of coughing once followed immediately upon his meal. The discharge from his side had continued unaltered, and his body had been more regular, but his pulse had never sunk below 120.

"On the 24th of July there was more blackness about the lips and fingers, with more frequent recurrence of dyspnoea, diminution of appetite, and irregular alternations of heat and cold. Bark was ordered, with acids, but as they affected his bowels, they were not long continued; and it seemed that much of the present exacerbation depended upon the weather, which was stormy, and the wind blew for many days with immense force immediately upon their house, which was in an elevated situation, directly over the sea. It was therefore recommended that some less exposed situation should be tried, and he was accordingly removed from Ramsgate to a well sheltered house at Margate, and, for some days, his breath was considerably improved by the change; but, on August 14, he had a most dreadful attack of suffocation. The nurse on returning to the bed, where she had left him apparently easy, found him cold and motionless, with a deep blackness over his face and hands; from which state he began to recover on being moved quickly. I found him oppressed in his breath to a most distressing degree, with his face turgid and purple, and his pulse very quick, and so weak, as to be scarcely distinguishable. Some white wine was given at the spur of the moment, and it revived him and alleviated his dyspnoea; and when another fit seemed approaching, it was again given, and prevented it in a considerable degree. Some volatile medicines were therefore ordered, and Dr. Reynolds was requested also to see him, when it was concluded to give him some medicine, with cicuta out of decoction of bark, and the occasional use of his volatile medicines was also permitted, and to take away some blood by cupping; and, unless relief was obtained, to take some

also from the arm ; and as none of his symptoms had remitted, *ziv.* were taken the next morning, the crassamentum of which coagulated very loosely, and was broken down by the slightest touch. About mid-day the return of his suffocation was more frequent, his face pale and full of anxiety, and he could only breathe when supported upright, and had frequent spasms of the muscles of the face and of the arms. The more stimulating plan was therefore again adopted. His chest was blistered, and with his volatile medicines musk also was given. Of the former he took most liberally, and seemed to be much relieved by its use ; for six days he had never taken less daily than spirit. ammon. comp. spir. lav. comp. aa ʒss . out of cinnamon water ; and the only food he took was a thick spermaceti mixture. On the night of the 20th he appeared fast approaching to his dissolution. The pulse was not perceptible, except now and then, in the smallest possible undulations. The face and extremities were pale and cold, and no medicine could be got down. By keeping a toast soaked in white wine in his mouth, by the application of blisters and gentle frictions, he again rallied, and it appeared that in sixteen hours the wine given him had amounted to five pints. He felt on the morning of the 22d, tolerably well ; his pulse was little above 100 ; his breath easier ; he had dressed himself, and passed a natural copious evacuation ; he took some breakfast, amused himself as usual, and was carried out. I gave him myrrh and steel in tolerable quantities, and he went on without any return of his suffocation till the afternoon of the 26th.

“ He had been out a good deal, and had taken a sufficient quantity of food, but after dinner he leaped suddenly from the sofa, and for some minutes exerted more strength than his mother and two nurses could overcome ; after this his suffocations and difficulty of breathing came on as before.

“ Although his senses were perfect, his countenance, his difficulty of breathing, and the vast size to which his legs had swelled within a very few hours on the 28th, shewed that he could not long exist, and he died early in the morning of the 29th.

“ The body was examined by Mr. Gilder, surgeon, and the following appearances were observed. Externally the left side of the thorax was somewhat more depressed than the right, which proceeded chiefly from a diminution of the pectoral muscle on that side ; between the sixth and seventh ribs there was a depression more strongly marked. The abdomen was much distended with air ; but its whole contents were perfectly free from any appearance of disease.

“ In the right cavity of the thorax, and in the pericardium, there was no more than the usual quantity of fluid.

“ The heart seemed perfectly healthy.

“ The right lung was loaded with blood, and, probably, of larger relative proportion than was natural; one very small cheesy tumor was found in the lower part of it, but to the eye, and to the touch, the whole gave a general idea of health.

“ Before the examination of the left lung a probe was introduced, and passed very readily from the opening between the sixth and seventh rib.

“ The left lung adhered very strongly to the forepart of the ribs, and on dissecting it away, a cavity came into view into which the probe had passed, and which was bounded by strong adhesions of the lung to the ribs, from the first to the seventh, to the spine for the same length, and to the diaphragm; from this cavity the matter had proceeded during his life, and some, the quantity of which an accident prevented us from measuring, was now found in it, but it was not more than a teacupful, and differed from the former discharge only in being more watery.

“ The lung itself was compressed into a very small space, and the substance of it had no communication with the abscess; it did not expand on being blown into, contained no air in its cells, and must have been totally useless. The pleura was destroyed, and there did not appear to be any natural process going on for repairing the injury.”

We shall conclude this subject with a case of empyema, treated by Mr. Wattell, a practitioner in London, which appears to have ended successfully.

“ May 16, 1793, Mr. John Metcalfe, aged 16, of an athletic make, and sanguine habit, was exposed to violent cold, when overheated by exercise. In the evening he complained of a sharp pain in his left breast, and across his loins; and feeling chilly, he drank some warm brandy and water, and went to bed. He was restless and feverish in the night; and the next morning, the pain being more severe, Mr. Wattell was sent for.

“ He then complained of a pain across his chest, and particularly in the region of his left kidney. His skin was very hot, his face like scarlet; his breathing difficult and painful; his pulse 100, hard and full. Eighteen ounces of blood were taken away; a large blister was applied to his side; and various medicines were given. The next morning the symptoms were rather more favourable; but in the evening they were much aggravated; his skin was dry, his cough hard, &c. Twelve ounces of blood were taken away. May 19th, he was better; but on the 20th his breathing became very difficult, and the pain in his chest more severe: his pulse was 110 and tense. He lost five ounces of blood, and Dr. Saunders was called in; who ordered eight ounces more of blood to be taken away, and four grains of James's powder to be taken every four hours, with a saline draught.

" On the 25th the pain was nearer to the *vertebræ*, and on the 2d of June it abated, and symptoms of a crisis appeared. The left carotid artery beat 110 times in a minute; the pulse at the wrist was 88.—June 4th, the pain was near the left nipple; and the next day it was in the left shoulder.—June 12th, he continued much in the same way; the pain shifting from his shoulders to the right side, which was very acute when he coughed. Three ounces of blood were taken from the back by cupping; and his side was dry-cupped, which gave great relief.

" July 3d, a tumor appeared under his left nipple, attended with pain, and projection of the ribs. A plaster of empl. litharg. comp. was applied. July 14th, his cough continued to be troublesome, with acute pains. July 20th, the tumor was larger: a fresh plaster was applied. The pulsation of the carotid artery was 140 times in a minute; that at the wrist 110. This day he said he perceived something give way in his chest: his pain then ceased. July 23d, he had a good night, coughed seldom, and had very little pain. This day Mr. Wastell observed his heart beat on the right side. July 25th, the tumor was less, and the pain scarcely perceptible. From this time his cough troubled him but seldom.

" Aug. 6th, a small tumor was perceived between the 7th and 8th ribs, on the right side: the heart beat still more on the same side. Aug. 10th, Mr. Turnbull, surgeon to the Eastern Dispensary, examined him with Mr. W. When placed in a recumbent posture, the small tumor on the right side emptied itself: when pressed upwards it gave great pain. The pulsations at the wrist were 110; those at the heart more frequent. The rising of the ribs on the left side continued nearly the same: the tumor on the right side became painful. Aug. 14th, on applying his hand to the tumor on the right side, Mr. Wastell could perceive it fill and empty itself, every time the patient coughed. Aug. 16th, the tumor was larger; and filled at every expiration. Mr. W. proposed opening it, but was not permitted. Aug. 19th, the tumor was very painful, and discoloured.

" Aug. 20th, this day, at noon, he had an incessant cough, and began to spit thick matter, of a greenish colour: when Mr. W. came to him at five o'clock, he had spit three half pint basonsful, and was like to be suffocated. Dr. Turnbull, physician to the Eastern dispensary, accompanied Mr. W. and agreed with him in the necessity of an immediate operation; which Mr. W. performed, by making an incision between the 7th and 8th ribs, on the right side, and let out 52 ounces of thick matter, similar to what had been spit up. The part was dressed with a poultice; and the patient was put to bed. The pulsation of the heart was then near to the right axilla; and too quick to be counted: the pulse at the wrist 136; his breathing 48 times in a minute. He

was placed on his right side, and an anodyne was given. His appetite did not fail during his whole illness; but his strength was much reduced.

"About five days after the opening was made, the heart began to approach towards the sternum, and the tumor on the left breast gradually disappeared. The discharge, both by the wound, and by the mouth, continued copious for some days; then it diminished. Nine days after the operation, the heart was under the sternum.

"Sept. 1st, he spat freely by night, but not in the day; and as the discharge from the wound was lessened, and a fulness appeared below the orifice, Mr. W. enlarged the aperture, and applied a poultice. Three days after, the heart was perceived on the left side of the sternum; and the patient was better in all respects. Sept. 6th, as the expectoration of matter, by night, continued, Mr. W. made two issues between his shoulders, to hold three peas each, and gave him tonics, and an opiate at bed-time. From this time his recovery was rapid, and he gained strength daily.

"On the 26th of September he walked from Burr-street to Broad-street, distant a mile and a half, to see his physician, Dr. Saunders, and to let him know that his heart was again in its proper place; and walked back without the least inconvenience. He now gained flesh, and began to recover his florid complexion.

"Sept. 30th, he went to Stockton, his native place, by sea; and about a fortnight after, informed Mr. W. by letter, that he was able to ride out every morning without fatigue, that the wound in his side was healed, but the issues still continued to discharge freely."

PLEURITIS SPURIA EPIDEMICA.

This disease may, not improperly, be taken notice of in this place. It was known by the following signs: A pain on the left side of the chest; a continual cough, but without expectoration; great pain in the head; dyspnoea; a frequent and weak pulse.

This epidemic disease is described by Dr. Home in the following terms:

"In general it came on with shivering, soon succeeded by heat; some had no cold fit, but were first attacked with heat and moisture of the skin; soon after came on a severe pain in the side, generally amongst the short ribs, which was increased by inspiration, and made breathing difficult. The part was sore upon pressure, but not swelled and discoloured; and the patient could not lie upon that side, which was always the left. A painful dry cough was present, but sometimes it was attended with a small viscid ex-

pectoration; there was also a constant severe head-ach. The skin was moist, yet a sensation of cold took place, and sometimes the shivering and sweating were alternate. The tongue was a little white, but moist; there was no great thirst, and the appetite was not much impaired. Sometimes there was nausea; and the state of the body was various. The pulse was from 90 to 136 in a minute, always soft and weak, and in some it could scarcely be felt.

"The distressing symptoms were four, and to relieve them seemed to be the chief indications of cure; they were, the stitch, cough, head-ach, and want of sleep.

"For the stitch, topical bleedings and cupping were of some use; but blisters were more effectual.

"For the cough, a mixture of the mucilage of gum-arabic, without any acid, was of use. The doctor thinks it is bad practice to join acids with mucilaginous medicines. Blisters to the back relieved it.

"The head-ach was always relieved by blisters applied to the temples.

"To promote sleep, the following draught was given at bedtime, but the patient had a bad night:

(No. 104.) ℞ Antimon. tartar. gr. fs,

Aq. fontan. ℥iss.

Tinct. opii gtts. xx.

Misce fiat Haustus anodynus.

"Had the quantity of opium been increased, and the pediluvium been used at the same time, it probably might have answered the intention.

"It is of consequence to distinguish this disease from the pleuritis vera, which an attention to the state of the pulse, and the absence of febris synocha, will clearly point out, as the methods of cure for the latter disease might, in the former, endanger the patient's life."

Dr. Gregory mentions the *spurious pleurisy*, but it varies much from the one just described; for he says, "it is known by the want of cough, or its continuing without any expectoration; that, added to the soreness upon pressure, there was often external tumor and redness."

These circumstances have induced Dr. Temple to put the following Queries. May they not both be *rheumatic* affections?—What is the *pleuritis spuria* of Boerhaave?

GENUS XIII. CARDITIS.

Inflammation of the Heart.

Carditis, *Sauv. gen. III. Vog. 54.*

Pericarditis, *Vog. 53.*

Carditis spontanea, *Sauv. sp. 1. Senac. Traité de Cœur, lib. iv. cap. 7. Mem. de Berlin, 1756.*

Erysipelas pulmonis, *Lomm. Observ. lib. ii.*

1. *Description.*] This disease is attended with all the symptoms of pneumonia, but in a higher degree; it is besides said to be accompanied with hydrophobic symptoms, fainting, palpitation of the heart, a seeming madness, a sunk and irregular pulse, watery eyes, and a dejected countenance, with a dry and black tongue. On dissection, the heart and pericardium are found very much inflamed, and even ulcerated, with many concretions of lymph.

Dr. Fordyce, under the head of Inflammation of the Pericardium, says, "this also has many things in common with the inflammation of the *pleura*; but the pain is *deeper seated*, and is not so much increased upon inspiration.

"If the *heart* is affected, the pulse becomes small, irregular, and intermittent, with immense anxiety. The patient falls into *synopes*, and is soon destroyed."

2. *Causes, &c.*] The same as in the *pneumonia*.

3. *Prognosis.*] In the *carditis* the prognosis is more unfavourable than in the *pneumonia*; and indeed, unless the disease very quickly terminates, it must prove fatal, on account of the constant and violent motion of the heart, which exasperates the inflammation, and increases all the symptoms.

4. *Cure.*] Here bleeding is necessary in as great a degree as the patient *can possibly bear*, together with blistering, and the antiphlogistic regimen likewise carried to a greater height than in the *pneumonia*; but the general method is the same as in other inflammatory diseases.

From the immediate connection of the parts, there may occur, at the same time, a *Paraphrenitis, or Inflammation of the Diaphragm*, of which Dr. Fordyce gives the following account.

"This arises from the same causes as the inflammation of the *pleura*. The pain is very violent and deep seated in the lower part of the breast, or under the short ribs; or striking between them and the back: the belly is drawn up, and kept as much at rest as possible; the respiration is excessively quick, small, and difficult, and performed principally by the muscles of the breast; the patient is frequently affected with sickness and hiccough; the pulse is for the most part very frequent, small, hard, and often irregular; there is great anxiety; the other symptoms of irritation come on, and

death frequently ensues. If this does not happen, the progress, termination, and manner of treatment, are nearly the same as in the pleurisy."

GENUS XIV. PERITONITIS.

Inflammation of the Peritonæum.

Sp. I. *Inflammation of the Peritonæum* properly so called;

Peritonitis, *Vog.* 62, *Lieutaud*, Hist. anat. med. lib. i. obs. 3.
Raygerus, apud eund. lib. i. obs. 341. *Morgagn.* de sed.
 LVII. 22.

Sp. II. *Inflammation of the Peritonæum* extended over the
Omentum.

Epiplöitis, *Sauv.* gen. 106. *Sag.* gen. 308.
 Omentitis, *Vog.* 61.
 Omenti inflammatio, *Boerh.* 958. et Ill. *Van Swieten*, Comm.
Stork, An. Med. I. 132. *Hulme* on the puerperal fever.

Sp. III. *Inflammation of the Peritonæum* stretched over the
Mesentery.

Mesenteritis, *Vog.* 60.
 Enteritis mesenterica, *Sauv.* sp. 4.

GENUS XV. GASTRITIS.

Inflammation of the Stomach.

A. *Gastritis Phlegmonodæa*, or the genuine *Gastritis*.

Gastritis legitima, *Sauv.* sp. 1. *Eller.* de cogn. et cur. morb.
 sect. xii. *Haller.* obs. 14, hist. 3. *Lieut.* Hist. anat. Med.
 lib. i. 74.

Gastritis erysipelatoſa, *Sauv.* sp. 4.

Cardialgia inflammatoria, *Sauv.* sp. 13. *Tralles*, de opio sect. ii.
 p. 23.

These diseases Dr. Cullen has thought proper to consider all under the general head of Gastritis, as there are no certain signs by which they can be distinguished from each other, and the method of cure must be the same in all.

1. *Description.*] The inflammation of the stomach is attended with great heat and pain in the epigastric region, extreme anxiety, an almost continual and painful hiccough, with a most painful vo-

miting of every thing taken into the stomach. Sometimes a temporary madness ensues; and there is an instance in the Edinburgh Medical Essays of the disorder being attended with an hydrophobia. The pulse is generally more sunk than in other inflammations, and the fever inclines to the nature of a typhus. The disorder is commonly of the remitting kind, and during the remissions the pulse frequently intermits. During the height of the disease, a mortal phrenitis frequently supervenes. The disease terminates on the fourth, seventh, ninth day, or from the eleventh to the fifteenth; and is more apt to end in a gangrene than pneumonic inflammation, and more frequently in a scirrhus than in an abscess.

2. *Causes, &c.*] The inflammation of the stomach may arise from any acrid substance taken into it; from a vehement passion; too large draughts of cold liquor, especially when the person is very hot; from a surfeit; a stoppage of perspiration; repulsion of the gout; inflammations of the neighbouring viscera; or from external injuries, such as wounds, contusions, &c.—It affects chiefly those of a plethoric habit and hot bilious constitution.

3. *Prognosis.*] This disease is always very dangerous, and the prognosis doubtful, which also must be in proportion to the severity of the symptoms. A cessation of pain, coldness about the præcordia, great debility with a languid and intermitting pulse, with an abatement of the hiccough, denote a gangrene and speedy death. From the sensibility of the stomach also, and its great connection with the rest of the system, it must be obvious, that an inflammation of it, by whatever causes produced, may be attended with fatal consequences; particularly, by the great debility it produces, it may prove suddenly fatal, without running through the usual course of inflammation.—Its tendency to admit of resolution may be known by its having arisen from no violent cause, by the moderate state of the symptoms, and by a gradual remission of these symptoms in the course of the first, or at most of the second week of the disease. The tendency to gangrene may be suspected from the symptoms continuing with unremitting violence, notwithstanding the use of proper remedies; and a gangrene already begun may be known by the symptoms above mentioned, particularly great debility and sudden cessation of pain. The tendency to suppuration may be known by the symptoms continuing but in a moderate degree for more than one or two weeks, and by a considerable remission of the pain while a sense of weight and anxiety still remain. When an abscess has been formed, the frequency of the pulse first abated: but soon after it increased, with frequent cold shivering, and an exacerbation in the afternoon and evening; followed by night-sweats, and other symptoms of hectic fever. These at length prove fatal, unless the abscess open into the cavity of the stomach, the pus be evacuated by vomiting, and the ulcer soon heal; events which seldom occur.

4. *Cure.*] It appears from dissections, that the stomach may very often be inflamed, and the characteristic marks of it have not appeared; and therefore we are often exposed to much uncertainty in the cure. But when we have sufficient evidence that a state of active inflammation has taken place in the stomach, the principal object to be aimed at is to obtain a resolution. Before, however, this can be accomplished, it will often be necessary to employ measures with the view of obviating urgent symptoms. When the symptoms appear in the manner above described, the cure is to be attempted by *large and repeated bleedings* employed *early* in the disease; and from these we are not to be deterred by the weakness of the pulse, for it will commonly become fuller and softer after the operation. A very large blister ought also to be applied to the region of the stomach; and the cure will be assisted by fomentations of the whole abdomen, and by frequent and copious emollient and laxative clysters. Vide Form. (No. 34. and 89.) or the following from the Pharmacopœias of St. George's and Guy's hospitals:

(No. 105.) R. Decocti communis pro clystere ℥ix.

Mellis ℥ij.

(No. 106.) R. Seminum lini integrorum ℥j.

Aquæ fontis ℔j.

Coque per horam quadrantem et cola liquorem pro enemate.

(No. 107.) R. Decocti pro enemate ℥x.

Olei olivæ ℥ij.

Mucilag. arabic. gummi ℥j.

Tere oleum cum mucilagine donec in misturam perfectam coeant; tum sensim adde decoctum ut fiat enema.

Interdum addere liceat magnesiæ vitriolatæ ℥j.

The irritability of the stomach in this disease will admit of no medicines being thrown into it; and if any can be supposed necessary, they must be exhibited in clysters. Diluting drinks may be tried; but they must be of the very mildest kind, and given in very small quantities at a time. Opiates, in whatever manner exhibited, cannot be retained in the stomach during the first days of the disease; but when the violence of the disease shall have abated, and when the pain and vomiting recur at intervals only, opiates, given in clysters, may frequently be employed with advantage; and after bleeding and blisters, no remedy is more effectual either in allaying the pain or vomiting. The following opiate clysters are employed at Guy's, St. Thomas's, and St. Bartholomew's, hospitals:

(No. 108.) R. Decocti hordei ℥viij.

Tincturæ opii ℥j ad ℥ij.

Misce fiat Enema.

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(No. 109.) ℞ Enematis emollientis ℥iv.
Tincturæ opii gutt. xl.

Misce fiat enema anodynum.

(No. 110.) ℞ Olei olivæ ℥iv.
Tincturæ opii gutt. xl.

Misce fiat enema.

Or the following, from the Pharmacopœia Chirurgica :

(No. 111.) ℞ Mucilaginis amyli lib. fs.

Tincturæ opii drach. j.

Misce fiat enema.

As soon as the stomach will retain medicine, laxative, gentle refrigerant cathartics, taken by the mouth, such as the soda phosphorata, soda tartarifata, or the like, are productive of great benefit. A tendency to gangrene in this disease is to be obviated only by the means just now mentioned ; and when it does actually supervene, it admits of no remedy. A tendency to suppuration is to be obviated by the same means employed early in the disease. After a certain period it cannot be prevented by any means whatever ; and, when actually begun, must be left to nature ; the only thing that can be done by art being to avoid all irritation.

B. *Gastritis Erysipelatosa*, or the *Erysipelatous Gastritis*.

1. *Description.*] This species of inflammation takes place in the stomach much more frequently than the former. From dissections it appears that the stomach has been often affected with inflammation, when neither pain nor fever had given any notice of it ; and such is justly looked upon to have been of the erysipelatous kind. This kind of inflammation also is especially to be expected from acrimony of any kind applied to the stomach ; and would certainly occur much more frequently, were not the interior surface of this organ commonly defended by mucus exuding in large quantity from the numerous follicles placed immediately under the villous coat. On many occasions, however, the exudation of mucus is prevented, or the liquid poured out is of a less viscid kind, so as to be less fitted to defend the subjacent nerves ; and it is in such cases that acrid matters may readily produce an erysipelatous affection of the stomach.

In many cases, however, this kind of inflammation cannot be discovered, as it takes place without pain, pyrexia, or vomiting ; but in some cases it may ; namely, when it spreads into the œsophagus, and appears on the pharynx and on the whole internal surface of the mouth. When therefore any erysipelatous inflammation affects the mouth and fauces, and there shall be at the same

time in the stomach an unusual sensibility to all acrids, and also a frequent vomiting, there can be little doubt of the stomach's being affected in the same manner. Even when no inflammation appears in the fauces, if some degree of pain be felt in the stomach, if there be a want of appetite, an anxiety and frequent vomiting, an unusual sensibility with regard to acrids, some thirst, and frequency of pulse, there will then be room to suspect an inflammation in the stomach; and such symptoms, after some time, have been known to discover their cause by the inflammation rising to the fauces or mouth. Inflammation of this kind is often disposed to pass from one place to another on the same surface, and, in doing so, to leave the place it had at first occupied. Such an inflammation has been known to spread successively along the whole tract of the alimentary canal; occasioning, when in the intestines, diarrhœa, and in the stomach vomitings; the diarrhœa ceasing when the vomitings came on, and the vomitings on the coming on of the diarrhœa.

2. *Causes, &c.*] An erysipelatous inflammation may arise from acrid matters taken into the stomach; or from some internal causes not yet well known. It frequently occurs in putrid diseases, and in those recovering from fevers.

3. *Cure.*] When the disease is occasioned by acrid matters taken internally, and these may be supposed still present in the stomach, they are to be washed out by drinking a large quantity of warm and mild liquids, and exciting vomiting. At the same time, if the nature of the acrimony and its proper corrector be known, this should be thrown in; as in the case of mineral poisons, which an alkali will decompose: or if a specific corrector be not known, some general demulcents should be employed, such as *lac amygdalæ*, or the following from the Pharmacopœias of Guy's and St. Bartholomew's hospitals:

(No. 112.) ℞ Decocti hordei lib. ij.

Arabici gummi in pulv. trit. ʒj. Coque paulisper ut solvatur gummi.

(No. 113.) ℞ Decocti hordei lib. ij.

Crystallorum tartari in pulv. trit. ʒiv.

Sacchari purificati ʒj. Misce.

Or the following from the formulæ of Dr. Nankevel:

(No. 114.) ℞ Amygd. xv.

Olei amygdal. ʒj.

Gum. arab. in pulv. trit.

Sacchari alb. sing. ʒij.

Aquæ cinnamomi ʒviij.

Misce fiat mistura. Detur cochl. duo pro re nata.

These measures, however, are more suited to prevent than to cure inflammation after it has taken place. When this last may be supposed to have happened, if it be attended with a sense of

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heat, with pain and pyrexia, according to the degree of these symptoms, the measures proposed for the cure of the other kind are to be more or less employed. When an erysipelatous inflammation of the stomach has arisen from internal causes, if pain and pyrexia occur, bleeding may be employed in persons not otherwise weakened; but in case of its occurring in putrid diseases, or where the patients are already debilitated, bleeding is inadmissible; all that can be done being to avoid irritation, and only throwing into the stomach what quantity of acids and acescent aliments it shall be found able to bear, or the fermenting draught (No. 45.) In some conditions of the body in which this disease is apt to occur, cold infusions of the Peruvian bark and colombo may seem to be indicated; but an erysipelatous state of the stomach will seldom allow them to be used. Where it is advisable to make the attempt, the following may be tried;

(No. 115.) R Cinchonæ in pulv. trit. ʒj.
 Rad. colomb. in pulv. trit. ʒss.
 Zingiberis in pulv. trit. ʒss.
 Aquæ fontis lib. ij. Infunde per hor. xxiv. Capiat
 cyath. parvul. bis terve indies.

As *ulceration* is a consequence of antecedent inflammation, either phlegmonous or erysipelatous, it cannot be amiss to insert here the following case of ulceration in the stomach, published in the Medical and Physical Journal by Mr. Moore, of London.

“A stout middle-aged woman had long complained of considerable pain in her stomach, which sometimes darted through to her back; she likewise had occasional fits of vomiting in the morning. These symptoms were attributed by her friends to drinking, to which she was much addicted; the event, however, makes it more probable, that her sufferings were the cause of her drinking.

“She passed the morning of the 29th of March last at an ale-house; and at one o’clock in the afternoon, she was attacked suddenly with such a violent pain all over her belly as to be forced to scream aloud.

“Mr. Patten was immediately called to her assistance, who employed such remedies as he judged proper. He informed me, that when he saw her, her pulse was quick and weak; and some degree of coldness had taken place on the extremities.

“The sufferings of the patient abated with her strength; she sunk rapidly, and expired thirteen hours after she was attacked with the pain.

“I opened the body thirty hours after her death; and although the corpse lay in a room without a fire, yet the abdomen was distended with gas, and there was some emphysema in the cellular membrane, the effect of beginning putrefaction.—This evinces that gin and porter, though drunk plentifully during life, have little power in retarding putrefaction after death.

"The first preternatural circumstance which occurred in opening the abdomen, was the effusion of about two quarts of a whitish fluid. It was discovered, that the source of this was a circular orifice in the stomach, about a quarter of an inch in diameter; and it appeared that the white fluid was gruel and the other drinks which the patient had swallowed previous to her disease, mingled with the secretions of the stomach. Upon examining the internal surface of this organ, two ulcers were discovered, each about an inch in length, of an oval form, and apparently spreading towards each other. In the centre of one of the ulcers was the small hole formerly mentioned; its edge was thin and smooth: the substance of the stomach, near the ulcers, was thickened, and in some degree inflamed; the peritoneum was slightly inflamed, and the body had no other diseased appearance.

"The disease which destroyed this poor woman, though uncommon, has been mentioned by authors. Bonetus, Morgagni, as well as others, have recorded similar cases; and the various appearances of ulcers in the stomach are accurately described in Dr. Baillie's *Morbid Anatomy*.

"This is, probably, a more frequent cause of sudden death than is generally imagined, for it is the second instance I have met with.—The first was a very young girl, whose only complaint was occasionally vomiting her food. This gave her so little uneasiness, that she tried as much as possible to conceal it, lest she should be advised to swallow medicines. One night she was seized with what was believed to be a very violent fit of the cholera. Opium did not diminish the pain; in a few hours cold sweats broke out, her pain left her, and she died in sixteen hours from the beginning of the attack.

"Two circumstances occurred in both these cases, different, I think, from what was naturally to be expected.

"The *first* is, the sudden attack of excruciating pain, which was felt all over the belly. I know no alteration in the diseased parts which could have occurred to produce this effect, except the opening in the peritoneal coat of the stomach, and the effusion of its contents into the general cavity of the abdomen.

"The gastric juice gives no sensation to the stomach itself; but it is, perhaps, capable of exciting all the torture these patients endured, when applied to the peritoneum, a membrane not adapted by nature to sustain its application.

"The *second* circumstance is the very sudden death of the patients;—To what is this to be attributed? The most ignorant medical man might easily have foretold, that these patients could not recover after a hole was formed in their stomachs; but I doubt if the wisest could have prophesied that this event would put so speedy a termination to life. The symptoms of this malady are few and

equivocal. But if it could be known, that one had an ulcer in the stomach previous to its penetrating into the abdomen, a regimen and treatment might be prescribed, which, possibly, would contribute to heal it. For it is certain, that ulcers in this organ have healed; poisons have been swallowed, which must have eroded portions of the internal surface of the stomach, and wounds have been received into it without proving mortal.

“The chance of curing this disease being, however, very small, let us turn our attention towards the causes and the prevention of so dangerous a distemper. We must here, as in other parts of the obscure science of medicine, have recourse to analogy and conjectures. Ulcers upon the external parts of the body, are produced either by diseases or by accidents. The latter is the more common cause; and this may likewise be the case with ulcers in the stomach.

“Many persons are extremely rash in swallowing fish bones, fruit stones, and other hard and sharp substances. Women frequently swallow pins without fear, so that it seems to me very difficult to give a good reason why ulcers in the stomach occur so seldom as they do. It is to be wished, that the danger of such practices was more generally inculcated, that a real benefit might result from these dissections; for it is known to all surgeons, that a very slight puncture in the skin sometimes degenerates into an ill-conditioned ulcer.

“The stomach is not invulnerable, and it is susceptible of ulceration as well as the skin. The contact of the gastric juice, and the variety of foods which are swallowed together, with the action of the stomach, are not very favourable circumstances for healing an injury in this part; and should any of these circumstances, or some malady in the constitution, excite ulceration, a healing disposition may never take place; and, if the ulcer spreads and pierces the coats of the stomach, a sudden and painful death is the inevitable consequence.”

Genus XVI. ENTERITIS.

Inflammation of the Intestines.

Enteritis, *Sauv.* gen. 105. *Lin.* 29. *Vog.* 57. *Sag.* gen. 307.

Intestinorum inflammatio, *Boerh.* 959.

Febris intestinorum inflammatoria ex mesenterio, *Hoffm.* II. 170.

Sp. I. *Enteritis Phlegmonodæa*, or the *Acute Enteritis*.

Enteritis iliaca, *Sauv.* sp. 1.

Enteritis colica, *Sauv.* sp. *Boerh.* 963.

This disease shews itself by a fixed pain in the abdomen, attended with fever, vomiting, and costiveness. The pain is often felt in different parts of the abdomen, but more frequently spreads over the whole, and is particularly violent about the navel.

Inflammations of the intestines may arise from the same causes as those of the stomach; though commonly the former will more readily occur from cold applied to the lower extremities, or to the belly itself. It is also found supervening on the spasmodic colic, incarcerated hernia, and volvulus.

Inflammations of the intestines have the same terminations with those of the stomach, and the prognosis in both cases is much the same.

The cure of enteritis is in general the same with that of gastritis: but in this disease there is commonly more opportunity for the introduction of liquids, of acids, acerbent and other cooling remedies, and even of laxatives; but as a vomiting frequently attends the enteritis, care must be taken not to excite that vomiting by the quantity or quality of any thing thrown into the stomach. With regard to the suppuration and gangrene of the intestines following the enteritis, the observations made respecting these terminations of gastritis are equally applicable in this disease.

To this we shall annex the very excellent account given of this disease and its treatment, by Dr. Fordyce.

An *inflammation* of the *exterior coats* of the *Intestines* (of which the symptoms and manner of treatment are here laid down) differs greatly from that of the interior, villous, or mucous membrane; this last being attended with *dysentery*, or *aphthæ*.

It is brought on by external cold, fever, indurated *feces*, heavy or hard bodies lying on the intestines, intromissions, adhesive stimulants, spasmodic contraction of the intestines, *hernias*, and wounds.

The symptoms are a pain in the belly, occupying different parts according to the intestine affected; but fixed to the place in which it arose at first. It is extremely acute, except when the disease arises from a wound, and then it is sometimes hardly sensible; it is generally equable, sometimes however increasing by fits, and sometimes diminishing a little. For the most part the whole belly is affected, at the same time, with spasmodic pains and flatulency. The pulse becomes small, hard, frequent, quick, and often at last irregular and intermittent. Coldness of the extremities, together with a sudden and great prostration of strength,

take place. The muscular fibres of the inflamed part contract, so that nothing can pass through; and sometimes the *sphincter ani*, in such a manner that a small pipe can with difficulty be introduced into the *rectum*. Flatulencies in the stomach, sickness, violent retchings, and vomiting, are frequently produced. The tongue is dry, with great thirst, and the urine transparent, and sometimes pale, in small quantity, and discharged with difficulty. The breathing is quick, the patient bending forward and compressing his belly, the abdominal muscles being often spasmodically contracted; and from the irritation the patient is cut off, sometimes with delirium and convulsions.

The inflammation frequently terminates in gangrene and mortification, in which case the pain goes off, and the patient appears to himself, for a little, relieved; but the pulse continues frequent, small, and often irregular, and the extremities cold, and he is cut off.

If it be left to itself, this disease kills sometimes in ten or twelve hours, and almost always before the end of the third day; so that there is seldom any suppuration. But if the intestines should suppurate, the pain diminishes, and is converted rather into a sense of distension; irregular cold fits, with the other symptoms of internal suppuration, arise; and the contraction of the muscular fibres of the intestines, the great frequency of the pulse, and other symptoms, go off.

There is a greater chance of a suppuration taking place in the colon than in the *duodenum*, *jejunum*, or *ilium*.

The abscess may break either into the cavity of the *abdomen*, or into the intestinal canal. In the first case it is generally fatal, producing a hectic fever; in the second, the *pus* is evacuated by the *anus*, sometimes at first pure, afterwards mixed with the *feces*, gradually diminishing if the ulcer heals, and the patient is restored; or a considerable quantity of matter continues to be discharged, a hectic fever is produced, and he sinks.

At the beginning of the disease, after the pain has continued for a few hours, sometimes a great secretion takes place in the intestines; the villous membrane is also affected with inflammation, and it is converted into a dysentery: on the other hand, when in an inflammatory dysentery the secretion is imprudently checked by astringents, this kind of inflammation often arises.

It should be distinguished from the stone in the kidneys or ureters, from inflammation of the kidneys, and other abdominal *viscera*; from the pleurisy, and other inflammations of the *thorax*; and particularly from spasmodic pains in the intestines, and obstruction of the passage through them where there is no inflammation.

It is to be cured by the immediate application of the most powerful means of *resolution*; we are therefore to bleed to the

quantity of twelve or sixteen ounces, notwithstanding the smallness of the pulse, and seeming weakness: for the pulse becomes fuller, and the prostration of strength goes off when the inflammation is diminished; as, on the other hand, they are increased by stimulants: the bleeding is to be repeated at short intervals till the pulse becomes soft.

Purgatives are contra-indicated by the contraction of the inflamed part; and when they have been given, and have not purged, they have often evidently increased the pain, and other symptoms: but evacuations from the intestines, by means of clysters, are made with advantage, and (No. 34.) may be thrown in every two or three hours till a stool is procured.

Relaxants have not so frequently been exhibited internally as in other inflammations: nevertheless, when used, they are of great service. (Vid. No. 90, and 27.)

The circulation is to be brought to the surface of the body by the warm bath, or fomentations applied to the belly: but great care is to be taken lest cold from the air or moisture in coming out of the bath, or changing the fomentations, should do more mischief than the remedy does good: these are also useful when the *anus* is much contracted, so that clysters cannot be given.

Narcotic and sedative fomentations are also useful:

(No. 116.) \mathcal{R} Flor. chamæm. manip. ij.

Foliorum rutæ vel matricar. manip. j.

Capit. papav. alb. (sem. dempt.) \mathfrak{z} i.

Rad. althææ recent. \mathfrak{z} j.

Optime contundantur et coquantur in aquæ fontis q. s.
per minut. v. decoctum utatur pro fotu, et herb.
cocti pro cataplasmate.

(No. 117.) \mathcal{R} Capit. papav. alb. (semin. dempt.) \mathfrak{z} iv.

Coque ex aq. font. lib. iij. per decem min. dein
adde,

Sp. vini rect. \mathfrak{z} viiij. Exprimendo cola pro usu.

Some degree of inflammation of the skin of the belly has been raised by cupping-glasses with benefit: but blisters have not been commonly employed.

If these means should fail of success, opiates sometimes cure, by taking off the contraction; especially when joined with relaxants.

(No. 118.) \mathcal{R} Aquæ menthæ fativæ \mathfrak{z} iss.

Syr. papaveris alb. \mathfrak{z} ij. ad \mathfrak{v} j.

Antimon. tartaris. gr. $\frac{1}{3}$ ad \mathfrak{s} s.

Misce fiat Haustus.

Dr. Saunders, as a mild purgative in this disease, recommends,

(No. 119.) ℞ Kali tartarifat.
 Natr. Tartarifat.
 Natr. Vitriolat.
 Sodæ phosphorat. (Ph. Edin.)
 Magnes. vitriolatæ.
 Aquæ menthæ piperit. ℥vj. solve.

} horum cujus volu-
 eris ʒij.

Capiat cochlearia tria alternis horis donec rite solvatur
 alvus.

The food, both during the inflammation and after it is cured, should be farinaceous decoctions or moist farinaceous porridge or puddings.

Sp. II. *Enteritis Erysipelatosa*, or *Erysipelatous Enteritis*.

Concerning this nothing farther need be said, than what hath been already delivered concerning the gastritis.

Genus XVII. HEPATITIS.

Inflammation of the LIVER.

Hepatitis *Sauv.* gen. 113. *Lin.* 35. *Vog.* 58. *Sag.* gen. 312.
Boerh. 914. *Hoffm.* II. 14. *Junck.* 66.

1. *Description.*] The inflammation of the liver is thought to be of two kinds, acute and chronic; but the latter very often does not discover itself except by an abscess found in the liver after death, and which is supposed to have been occasioned by some degree of inflammation; for this reason the chronic inflammation often escapes observation, and we shall here only treat of the acute hepatitis.

The acute hepatitis is attended with considerable fever; a frequent, strong, and hard pulse; high-coloured urine; an acute pain in the right hypochondrium, increased by pressing upon the part. The pain is very often in such a part of the side as to make it appear like a pleurisy; and frequently, like that, is increased on inspiration. The disease is also commonly attended with a cough, which is generally dry, but sometimes moist; and when the pain thus resembles a pleurisy, the patient cannot lie easily except upon the side affected. The pain is frequently extended to the clavicle, and to the top of the shoulder; and is attended sometimes with hicough, and sometimes with vomiting. Some have added jaundice, or a yellowness of the eyes, to the symptoms of this complaint; but experience shews that it has often occurred without any such symptom.

When hepatitis is of the chronic kind, depending more on an

accumulation and effusion in the liver, than on an increased action of its small vessels, the patient complains rather of a sense of weight than of pain; and the fever is by no means either acute or constant: but it often returns in paroxysms somewhat resembling the attacks of an intermittent. This disease is very slow in its progress, frequently continuing for many months, and at last terminating in a very considerable suppuration. In most cases, however, it may be discovered by careful examination of the region of the liver externally. By this means, a considerable enlargement of that viscus may in general be found.

An *Inflammation of the Membranes of the Liver* may arise from the same causes as inflammation of the substance, but the symptoms differ as follows; the pain is more acute, it is attended with general inflammation, resembles more a pleurisy of the right side when the convex part is affected. It is to be treated nearly in the same manner as that disease.

2. *Causes, &c.*] The remote causes of hepatitis are not always to be discerned, and many have been assigned on a very uncertain foundation. It has been supposed that the disease may be an affection either of the extremities of the hepatic artery, or those of the vena portarum; and the supposition is by no means improbable. The opinion, however, most commonly adopted is, that the acute hepatitis is an affection of the external membrane of the liver, and the chronic kind an affection of the parenchyma of that viscus. The acute disease may be seated either on the convex or concave surface of the liver; and in the former case a more pungent pain and hiccough may be produced, and the respiration is more considerably affected. In the latter there occurs less pain; and a vomiting is produced, commonly by some inflammation communicated to the stomach. The inflammation on the concave surface of the liver may be readily communicated to the gall-bladder and biliary ducts: and this, perhaps, is the only case of idiopathic hepatitis attended with jaundice.

3. *Prognosis.*] The inflammation of the liver, like others, may end by resolution, suppuration, or gangrene; and the tendency to the one or to the other of those events may be known from what has been already mentioned concerning the prognosis in gastritis. The resolution of hepatitis is often the consequence of, or is attended with, evacuations of different kinds. A hæmorrhage, sometimes from the nose, and sometimes from the hæmorrhoidal vessels, gives a solution of the disease. Sometimes the same thing is accomplished by a bilious diarrhoea; and sometimes the resolution is attended with sweating, and an evacuation of urine depositing a copious sediment. Sometimes it may be cured by an erysipelas appearing in some external part. When the disease terminates in suppuration, the pus collected may be discharged by the biliary ducts: or, if the suppurated part does not adhere any+

where closely to the neighbouring parts, it may be discharged into the cavity of the abdomen: but if, during the first state of inflammation, the affected part of the liver shall have formed a close adhesion to some of the neighbouring parts, the discharge after suppuration may be various, according to the different seat of the abscess. When seated on the convex part of the liver, if the adhesion be to the peritonæum lining the common teguments, the pus may make its way through these, and be discharged outwardly: or if the adhesion shall have been to the diaphragm, the pus may penetrate through this, and into the cavity of the lungs; from whence it may be discharged by coughing. When the abscess is seated on the concave part of the liver, in consequence of adhesions, the pus may be discharged into the stomach or intestines; and into these last, either directly, or by the intervention of the biliary ducts. Upon a consideration of all these different circumstances therefore, together with the general principles of inflammation, must the prognosis of this disease be established.

4. Cure.] The cure of hepatitis is performed by bleeding, blisters, relaxants, &c. as in other internal inflammations; but the symptoms at the beginning not alarming the patient, it is often too late before the remedies are employed; and from the slightness of the general inflammation, evacuations having less effect, this disease frequently terminates in suppuration, which, however, is to be avoided, if possible.

For this purpose we are to bleed to twelve or fourteen ounces any time before the fifth day; especially if there be general inflammation: and the bleeding is to be repeated, if the general inflammation continues, or the patient is relieved but not cured.

If there be a free passage for the bile into the *duodenum*, purgatives are also to be given. (Vide No. 58.)

In other cases, relaxants (vide No. 90, 27.), and blisters applied to the part, are principally to be depended on, and in all are useful.

If it be too late for the application of these remedies, or if they fail, and a suppuration takes place; as soon as we know this from the symptoms, (No. 47.) is to be taken four or five times a-day, increasing the quantity of the bark, so that the patient shall take from three drachms to half an ounce every twenty-four hours.

If the abscess points externally, we are to open it as soon as possible; provided it appears, from the immobility of the swelling, that the liver adheres to the *peritonæum*; and the dose of the bark is to be increased to $\mathfrak{z}i.$ ad $\mathfrak{z}j.$ every twenty-four hours, till a good suppuration and granulation come on. The medicine is to be used in the same manner, if from the purulent or ichorous stools we judge that the abscess has broken into the *duodenum*.

Mercury has been given with the same intention, in as great

quantity as could be taken without salivating the patient; but the bark appears to be far preferable if the case be recent.

When an abscess breaks into the cavity of the *abdomen*, the same means may be used, but the disease is commonly fatal.

The cure of hepatitis in warm climates, where the disease is much more common than it is in Britain, is chiefly trusted to mercury. Not only in cases of the chronic kind, but in acute hepatitis also, after an attempt has been made to alleviate the urgent symptoms by bleeding and blistering, recourse is immediately had to this powerful mineral. It is employed by different practitioners, and in different cases, under various forms. Some are very fond of the use of calomel. But the preference is in general given, and perhaps with justice, to friction with mercurial ointment over the region of the liver. But under whatever form it may be employed, it is necessary that it should be introduced to such an extent as to keep the patient on the verge of salivation for some length of time, the duration being regulated by the circumstances of the case.

From the liberal use of mercury, there can be no doubt that a successful resolution has been obtained in many cases, which would otherwise have infallibly terminated in suppuration. But notwithstanding the most careful employment of it in some cases, suppuration will ensue; and then it is very doubtful whether any benefit will be derived from the continuance of it. But when a suppuration has been formed, and the abscess points outwardly, the part must be opened, the pus evacuated, and the ulcer healed according to the ordinary methods in use for healing abscesses and ulcers in other parts.

We cannot better illustrate the practice of treating this disease by mercurials, than by inserting the cases published in the Edinburgh Medical Commentaries, by the late Dr. Houlston, physician to the Liverpool Infirmary. Treating on the effects of mercurials in the cure of obstinate dysenteries, and other consequences of hepatitis, he expresses himself to this effect:

“ It would seem, at first sight, that no medicine could be less adapted to the cure of a disease of this sort than mercury; and yet the following cases, which, having occurred in the Public Infirmary at Liverpool, were seen and known by numbers, will, I flatter myself, evince that the application of it, in certain circumstances, is founded in reason and justified by success.

CASE I.—“ William Brown, a seaman, who had remained above two years on the coast of Africa, was admitted an outpatient of the infirmary May 23, 1776, for an affection of the liver, attended with a dysentery, which he had laboured under for two years past, and for which he had taken a variety of medicines without obtaining any benefit. He was a stout made man, about forty-eight years of age, but had a very fallow complexion,

and a prominent belly, the region of the liver being enlarged, and, on pressure, painful. These, together with the flux, he himself imputed to his having been poisoned by the negroes, though he had no idea when or how. On enquiry, I found he had had an intermittent fever of long duration in the hot climates, and from that period his health had declined. His present complaint began on the coast with costiveness, attended with loss of appetite, vomiting, violent pain of the belly, shivering, and fever. When, after five days, a stool was procured, he seemed somewhat relieved at first. A looseness however succeeded, with griping pain, tenesmus, slimy and bloody stools. From this time his appetite continued tolerably good.

“ The most probable and usual means of putting a stop to the complaint were ordered, and persevered in near eight months; but finding that during all that time the disease was little relieved, and that only sometimes for a short space, recurring again with its usual violence very soon, I began to consider, that *it might very probably take its rise from a diseased liver*, and a consequent irregular secretion of bile. If that were the case, it was not likely that the flux should be got the better of, unless the affection of the liver, on which it depended, was first removed. With this view, having admitted him an in-patient January 16, 1777, I directed the mercurial inunctions to be gradually applied; and as no increase of the dysenteric symptoms followed their use, they were continued (a fortnight) till the mouth was affected, and a moderate salivation came on. When this took place, his stools became less frequent, more regular, natural, and free from blood. By the time it had ceased, he thought himself freed from all his complaints, and at his own request was discharged, February 27, though I told him then, I was apprehensive that his disorder would return, and a repetition of the course be requisite.

“ A fortnight after (March 13), he applied again for admission: his appetite was impaired, his gripings violent, his stools very frequent and bloody; his belly, about the region of the liver, was swelled, hard, and painful. After premising a few gentle evacuants, the inunctions were repeated. For some days he was no better; and being rather feverish, the mercury was omitted for a week, and then resumed. April 4, ptyalism was produced: he was then very easy in his belly, his looseness was almost stopped; and he said himself he was much better than ever he had been since the beginning of his illness. The mercurials, after a little respite, were continued some time longer; and on May 8, he was discharged perfectly well, and so remained.”

CASE 2.—“ September 23, 1779. William Martin, an Irish mariner, twenty-eight years old, meagre, of a fallow, bilious complexion, was admitted an in-patient of the infirmary, for a dysentery of six years standing. He had spent much of his life

in the warm climates: seven years ago he had lain nine months upon the coast of Guinea, and a little before that, had remained there two years at one time, during which residence he had had the flux. It began again in December, 1773, at Boston; and had continued from that time, almost without intermission, in spite of every attempt to cure it. For that end, he had been in an hospital in Charlestown, South Carolina; and on his return to England, was six months in Guy's, and after that three months in St. Bartholomew's Hospital, London; from thence he went into that at Cork, and afterwards into those of Gibraltar and Minorca, where he was discharged from the navy as unfit for the service. In these he took decoctions of logwood, decoctum album, rhubarb, and a great number of other medicines; but found no benefit from any, except lapis calaminaris boiled in milk, and from the dry vomit*; both of which checked the purging, though but for a short time, not more than twenty-four hours. He was forced to live almost wholly on milk. His stools were attended with much griping pain; they were bloody, but not always so. He was also troubled with the piles.

“As such various means had been used under the direction of so many able practitioners, I thought it unnecessary to attempt to succeed in his cure by the usual remedies; and determined to try what mercurials would do. It is true he had no sensible enlargement of the belly; but I was induced to have recourse to the inunctions, from recollecting the great benefit I had experienced from them in the preceding case, from the long duration of the disease, and the inefficacy of every remedy which had been administered. His complexion was very bilious, and had been so much so, long before I saw him, that he was supposed to have the jaundice; some had concluded that he was poisoned on the coast; others, that he was in a consumption, as his flesh and strength declined much, though he had no cough, nor any pain in the breast.

“I ordered him then to rub in half a dram of strong mercurial ointment, equal parts, every other evening; which he continued to do till October 9, when ptyalism was produced, which lasted ten or twelve days very copiously. During this time he took only the decoctum album and Castile soap. In three days after the spitting began, his flux stopped, his stools were natural, not more than one or two in twenty-four hours, and without any griping.

* The dry vomit (recommended by the late Dr. Maryatt, of Bristol) is composed of antim. tart. and cupr. vitriol. aa. p. æq. Five grains is given as a dose upon an empty stomach, and without any liquid to assist the vomiting. It generally operates easily, and evacuates much bile, without relaxing the stomach. After its operation, a spoonful of brandy is given; and if that comes up, a second, to remove the inclination to vomit.

He had, however, a very acute headach, which gradually went off; and by the end of the month he could eat broths, and other things, which before this time used to render the complaint violent, without any inconvenience.

“ Still the purging returned at times soon after, though not with the former violence; and he took the dry vomit, rhubarb, and lapis calaminaris, to little purpose. At his own request, therefore, he began again with the inunctions, November 25, which excited salivation in less than a fortnight, and seemed to have carried off the complaint; but as the stomach and intestines were greatly debilitated, I gave him, at different times, the sal martis, bark, and some astringents. Towards the end of January, 1780, he had a rheumatic attack, which he ascribed to cold from changing his room, but which yielded soon to the decoctum guiaci. The middle of February he was attacked with a slight tertian ague, to which he had been subject before, but which went off in a few days. In the beginning of March he was free from both, and signified a desire of going to sea.

“ The account he then gave of himself was this. Of stools, he had two or three in twenty-four hours, easy and natural; sometimes more costive than he wished on account of his hemorrhoids. Perhaps, once in a fortnight, he had a purging which continued about twenty-four hours. His appetite was poor; but what he eat (in which he was not very cautious) sat easier upon his stomach, and agreed better with him, than it had used to do; and his health and strength were much better than at any time since his disorder began. I consented to his going a short voyage; and his intention is, if the looseness return, and further assistance be necessary (which it probably may), to apply again, and try the effect of another salivation.”

Dr. Houlston observes that he never saw more of this man, but he has reason to believe he got well, having been seen long afterwards apparently in good health.

CASE 3.—“ Gaspard Peter Finch, a German, twenty-two years of age, having been a voyage to Jamaica, after staying there about half a year, came in a vessel to Liverpool, where he applied for admission into the infirmary, October 14, 1779, for a dysentery, which began during the passage, and had continued about three months. He was much emaciated, had a fallow, bilious complexion, but no apparent enlargement or increased sensibility of the viscera. I gave him the usual evacuant and astringent medicines, which he continued to take for three months, with but very little advantage, and that not permanent. Finding this to be the case, I proposed to him to try a mercurial course; to which he was persuaded by the last-mentioned patient. He began to rub in half a dram of the strongest ointment every night; and continued so to do for a month, when it was discontinued.

on account of his having a tertian ague, of which he had an attack before, since his admission into the hospital. It yielded, as did the former, to an emetic before the cold fit, and an opiate in the beginning of the hot one. I suffered it, indeed, to go on for a few days, as thinking it might possibly be of some service. No salivation had taken place; but his stools were regular, without pain or blood, and not more than two in twenty-four hours. He left the infirmary at the end of February; and I met him a fortnight after, when he informed me he was perfectly well, and going to Barbadoes in a vessel from this port."

These are the only cases of which, as they appeared important, the author had noted the particulars; but he was assured by a very intelligent gentleman who then attended the hospital, that some others of the same nature, and treated in this method, succeeded equally well, the *dysentery* being evidently *symptomatic*.

"Indeed," continues the doctor, "I have found, in many instances, where, after a residence in the hot climates, the liver has been obstructed and enlarged by previous inflammation, that very great benefit has been obtained by the gradual and prudent use of mercurials, and that sometimes from much smaller quantities than one might expect. A case of this kind occurred some time since.

CASE 4.—"A gentleman, who had spent some years in the West Indies, returned to England on account of his having long laboured under a bad state of health, which was not at all improved during the voyage home. He applied to me soon after his arrival; and as it appeared clearly that the liver was affected, I put him upon the mercurial inunctions. After he had used them a few times, he had occasion to go a journey of three or four days, and was desired to omit the mercury; which he did about a week before he sat out. By the time he came to the end of his journey, however, he found himself much better, and was very soon surprisingly recovered.

"We frequently meet here with persons returned from the coast of Africa, with pale, fallow, bilious complexions, prominent bellies, loss of appetite and strength, swelled legs, and general ill health. They grow gradually worse, and die, at length, emaciated and dropsical. They suspect, and others conclude, without foundation, that they have had a slow poison given them privately by the negroes. But these evils, which are wrongly attributed to the natives, are only caused by *hepatitis*. Enquire of these poor objects, you will generally find that they have had a fever (an intermittent) or the flux in the torrid zone: examine them, and you will frequently perceive that the liver is enlarged and indurated. This is the true cause of their bad state of health; and the remedy for it, in the opinion of the ingenious Dr. Lind, Dr. Clark of Newcastle, and others, is to be looked

for in mercurials. I have repeatedly seen great good effects in such cases from a salivation; and where that has relieved but in part, a second, or even a third, being excited, has succeeded well."

The succeeding case, though only an affection of the liver from a long-continued intermittent, is still an instance of the good effects of mercury in cases where (whether primarily or secondarily is immaterial) that viscus is brought into a state of disease.

CASE 5.—"The following is a case of accidental recovery in a poor Irishman whom I had taken into the infirmary, labouring under an ague of long continuance, anasarca, extreme debility, and emaciation. His complexion was very fallow, and his belly prominent; the effect, as appeared on examination, of enlarged and indurated viscera; a frequent consequence of agues amongst those who live in low marshy situations, to which they give the name of the ague-cake; and which, together with the subsequent ill health, is often wrongfully attributed to the use of the bark. I tried the above, and other means, for some time, without any permanent good effect. The ague indeed would stop for a while, and the patient seemed to acquire a little strength; but he soon relapsed. At length it happened that mercurialunctions, directed for another patient, were, by mistake, given to him. He had used them only a few times, when, to my great surprise, I found him in a salivation. I was the less dissatisfied at the mistake, as I thought it probable he might thence receive essential benefit: and the event justified my opinion, for the man soon got quite well. An instance this, which might be adduced as a further proof of the good effects of mercurials in cases of hepatitis; though such was the degree of weakness of this patient, that however desirable a mercurial treatment might have appeared, few practitioners would have ventured to advise it for a man so extremely reduced: and though the event was favourable, it would scarcely be a sufficient justification for adopting so hazardous a practice in similar circumstances."

We shall add two other cases, which fell under Dr. Houlston's care in the Liverpool Infirmary, after the publication of his paper. These tend very forcibly to confirm the propriety of the mode of treatment therein recommended; and the latter of them particularly refers to the instance of accidental recovery by salivation just recited.

CASE 6.—"Daniel Leonard was admitted an in-patient, August 25, 1785. He was a seaman, thirty-three years old; and had been attacked by the flux; followed by the ague, in the West Indies, six months before; and from that time had remained subject to frequent irregular attacks of both complaints.

"Though examination did not furnish any certain proofs of *enlarged or diseased viscera*, yet his general appearance confirming

me in the idea, I strongly suspected that to be the original cause of his ill health. In consequence, I proposed to him to undergo a mercurial course. The inunctions were ordered for him; and during the use of them, he seemed daily to grow better and stronger, insomuch that, before his mouth was affected, he was, at his own desire, discharged, freed from all his complaints, in less than a month.

CASE 7.—“ In this case, the enlargement of the liver was very evident indeed. George Jackson, a seaman, twenty-six years of age, returned from the hot climates, applied for admission into the infirmary October 27, 1785, having an irregular intermittent, which, though it frequently left him for a short time, constantly returned, and had done so for seven months. The case was too clear to hesitate about; and having explained to him my intentions and expectations, I ordered him to rub in upon the belly a dram of the mercurial ointment (composed of equal parts of quicksilver and lard) every other night.

“ He had only used it three times when a salivation commenced, so rapid and so violent, as to give me concern for having been, unintentionally, the cause of so much inconvenience to the man: but I comforted him, and myself too, with the hope that he would, by this means, be relieved at once from all his complaints; and this was so much confirmed by the event, that when the salivation had subsided, and the poor fellow's strength was recruited, he left the infirmary, December 1, 1785, perfectly well.”

The following consequences of hepatitis are described by the late Mr. Justamond in the fourth edition of his works.

“ A negro servant belonging to Dr. Mac Namara was admitted into the Westminster hospital under my care. He had a large prominent tumor on the right side of the linea alba, and immediately under the margin of the chest. From the seat of the complaint, the symptoms attending, and from an obscure fluctuation discerned in the tumor, I suspected this to be an encysted abscess of the liver, a disease often met with among negroes, and therefore resolved upon opening it. I made an incision through the whole extent of the tumor, and after having divided the muscles of the belly and the peritonæum, gave vent to a quantity of matter, which evidently appeared to be contained in a large cyst, totally distinct from the cavity of the belly, as usual in these cases. The sac ran so far back towards the spine, that it was not possible to empty it at once, and, indeed, the contents were so viscid and tenacious, that it was only by repeated injections with barley water, continued for about three weeks, that the cyst could be entirely evacuated. When this was done, and that the sides of it were consequently brought nearer together, one might plainly feel an enlargement and induration of the liver, extending through the

whole of its region. In little more than two months the wound was healed, except that there remained a fistulous opening which it was impossible for me to close. Considering that this orifice might be kept open by the disease of the organ, I directed my patient to rub half a drachm of strong mercurial ointment every day on the region of the liver, suspending the use of it occasionally, that the mouth might not be affected. By persevering in this course about six weeks, the whole of this immense induration subsided, and the fistulous opening, closed of itself. The success of this case induced me to try the effect of mercurial frictions in two other instances, of an enlargement and induration of the liver, evident to the sight and touch. Both these cases were cured by this method; even the induration, which was farthest advanced, and in which a prominence appeared.

“Those who are conversant in dissection know, that large and indurated livers are commonly found in the abdomen of persons who die of a dropsy in that cavity. These indurations have, indeed, been reckoned by some as the chief and perhaps the only cause of these collections of water; which, if it be the case, must be owing to the pressure of a hard mass upon so large a vein as the vena cava; thus obstructing the course of the blood returning to the heart; in the same manner as the pressure of the gravid uterus occasions an anasarca in the legs of pregnant women. Is it not probable, then, that this terrible disease might be cured if this apparent cause were removed? Accordingly, I remember to have found (though I cannot recollect where, having unfortunately lost many of my papers) that it was a practice used with success in India, to rub the belly with mercurial ointment in the dropsy of that cavity.

“Some years ago I translated a manuscript paper for Dr. Fothergill, which had been sent to him in the German language from a gentleman at Moscow. The author mentioned that he had observed many internal complaints to proceed from indurations of the liver, which could not otherwise be accounted for. He accordingly recommended a more frequent examination of the state of that organ than is generally attended to.”

Dr. Saunders, physician to Guy's hospital, in London, has published a very excellent treatise on this disease; and we find in the Medical and Physical journal, some testimonies in favour of the doctor's sentiments on it. The paper we allude to is an extract of a letter from Mr. Thomas Christie, surgeon of the 80th regiment, dated Trincomale, island of Ceylon, May 21st, 1798.

“On our first arrival,” says Mr. Christie, “at this station, which is accounted one of the most unhealthy in India, we were very sickly: of late, however, we are become extremely healthy, have not many sick, and but few casualties.—During my resid-

ence, although short, in India, I have had considerable experience in the endemic diseases of the country, particularly in *hepatitis*, and have had frequent opportunities of observing, in my own practice, the great justice and accuracy of Dr. Saunders's remarks on that complaint.

"As I had for some time the care of the whole garrison here, I had then an excellent opportunity of observing the comparative frequency of the disease, and violence of the symptoms, among the men lately arrived from Europe, the Europeans long in India, and the native troops.

"I found, that among the men of the 80th regiment, for the first six or eight months, the disease was much more frequent, much more violent in its symptoms, shewed more tendency to suppuration, and was more sudden in its crisis, than with the Company's European troops, who had been long in India, although the latter were the most debauched. Among the natives, *hepatitis* does not so often occur; out of the thousand native troops, I did not, in the course of three months, meet with more than two cases of liver complaints, which is, comparatively, a very small proportion.

"The following instance is strongly a proof of the proposition in part 5. sect. 1. chap. 5. with respect to the propensity of the inflammation to the stomach, causing a constant reaching; it also seems to shew, that all the supposed pathognomic symptoms are not present in every instance of *hepatitis*: Corporal Potter, of the 80th regiment, a healthy young man, was attacked about the 6th of November, 1797, with symptoms of pyrexia, attended with pain at the pit of the stomach, dyspnoea, and almost constant vomiting. As he had no cough, or affection of the bowels, he was treated as for an affection of the liver, although no tumor or particular pain was observable upon pressure of the right hypochondrium, nor did he complain of the pain extending to the shoulder till within three days of his death, which happened on the 20th of November.

"Upon opening the abdomen after death, and raising the sternum, I found the liver of its natural size, and in its usual situation, without any adhesions between its convex surface and the abdominal peritonæum, so that I began to conceive I had been mistaken in my opinion of the case, till observing the stomach particularly prominent, and some adhesion between it and the concave surface of the liver, I separated these with my fingers, when I found nearly a quart of well-formed pus contained between the stomach and the concave surface of the liver, a part of which latter was corroded, but the rest of that organ, as well as the stomach and other viscera, were in a sound state.

"I have made a point of opening every person who has died

of the liver-complaint, while under my care; and amongst the men of the 80th regiment, who were lately arrived from Europe, I did not find one out of twelve instances, in which suppuration had not existed in some part or other of the liver. Suppuration, I have every reason to believe, is not near so frequent amongst the natives, or Europeans who have been long in the country; and, indeed, amongst the men of the 80th regiment, who have now been above fifteen months in India, I find that, already, the disease puts on a different form, becomes less frequent, more slow in its progress, and shews much less tendency to run into suppuration. On my first coming here, I had originally sixteen or seventeen men in the hospital with hepatitis—I have now seldom more than six or seven, and have not lost a man from the complaint for the last two months, although we are now stronger in men than we were at that time, having being reinforced with drafts from some old regiments. From the mode of recruiting the army here, it seldom happens that the care of so many Europeans (about 800), just arrived in India, falls to the charge of one person, at one time; I therefore thought that these few remarks, as they relate to Europeans lately arrived in India, might be acceptable.

“There are many marshes, and much brush-wood in the vicinity of the fort; the atmosphere is moist; and most of the diseases here are those of debility;—to which I find the private men, as living worse, are much more subject than the officers. The fever-complaint has, however, I think, attacked a greater proportion of officers than men.

“I ought to observe, that ‘the *fever-complaint*’ is a familiar phrase in India for hepatitis; from inadvertency I make use too often of that indefinite term; but I always mean hepatitis, both of the acute and chronic kind.

“In agues, which are very frequent here, I have had an opportunity of making a comparative trial of the pale red, and yellow bark, and, from my own experience, have not the least hesitation in giving the preference to the last.”

As this is sometimes *complicated with other diseases*, an account of two dissections, communicated to the Medical Society of London by Mr. Macmillan Jameon, surgeon, in Port Royal in the island of Jamaica, will very properly close our remarks on hepatitis.

“The number of years that men will live in the West Indies with diseased livers,” says Mr. Jameon, “and the length of time, frequently, before hepatitis proves fatal, especially the chronic, or that species which affects the substance and internal parts of the liver, is very generally known, and requires no comment. Three cases have occurred to me lately, within a short

time of each other, which evince this; and confirm me in an opinion that hepatitis is here a more frequent disease than generally imagined.

“ It is also of some importance to be able to distinguish between hepatitis and other diseases, as it is treated in a different manner from most others, which cases of this kind may lead to.

“ I shall omit relating one case of hepatitis that was complicated with dysentery, as I did not see the patient till the last extremity, nor could I obtain the particulars of his treatment.

CASE 1.—“ Thomas Piddle, a seaman, in the naval hospital, at Port Royal, aged 28 years, of a very sanguine, florid complexion, was seized about eight weeks before his admission, with a violent pain in the region of the liver, attended also with a pain in the shoulder of his right side, dyspnoea, and other inflammatory symptoms, for which the surgeon of the ship had at first bled him, afterwards applied blisters to his side, and used different antiphlogistic remedies.

“ The 26th of Nov. after his admission into the hospital, these symptoms continued to increase with greater violence, the pain in his side became more fixed, attended with great anxiety and a considerable fever. It was not till after his arrival at the hospital that I had an opportunity of seeing him; he was then put under a mercurial course, on the supposition of his having a hepatitis, which was continued till the mouth and gums were affected. The mercury was accompanied with opium, and other antispasmodics, as the urgency of the symptoms required, but without success, as he grew daily worse till the 29th of December, when he died.”

Appearances on dissection.—“ The cavity on the right side of the thorax was filled with a thin brownish coloured fluid, which burst out freely on making an incision, and had the appearance of bloody serum in drops, mixed with purulent matter. The whole of the pleura lining this cavity had a rough sodden appearance; but there was no abscess or suppuration penetrating the mediastinum, or diaphragm, nor any communication between the diseased part, and the left cavity of the thorax or abdomen. That portion of the lungs occupying the right side of the chest was almost entirely destroyed, and the small part of it which remained, appeared like a congeries of the larger branches of its vessels, adhering together, and scarcely more than two ounces in weight. The left portion of the lungs was quite sound; the only appearances which deviated from a natural state were, a great flaccidity, and darker colour than usual; and I could not discern on the left side any of those adhesions of the lungs to the pleura, or tubercles, so common after inflammation in the thorax.

“ Having always supposed this disease a hepatitis, I was rather surprised at the appearances in the thorax; and also, on opening the abdomen to find the liver only a little enlarged; and

it was not until I had cut deep into its substance, that I discovered an abscess in the lower and posterior part of the right lobe, which contained a very thick yellow pus, part of it in coagula, very bland, and inoffensive to the smell (perhaps from its not having been exposed to air). This matter had not destroyed any of the exterior part of the liver, so as to diffuse itself into the abdomen; and although the external appearances were so different from what might have been expected, yet that part which was in contact with the matter, had a rotten spongy appearance. The gall bladder was enlarged, and almost empty.

“ From these appearances, I am of opinion, that the abscess in the liver was not the cause of this man’s death, although during his life it was mistaken for the entire disease; for the abscess was not very large, and the rest of the liver was sound; but that the immediate cause of his death was from the destruction of the lungs, and the quantity of matter which filled the right cavity of the thorax; and it is a query how far these diseases were connected with each other, or if at all. The deceased having belonged to Prince William Henry’s ship, he had been alternately from cold to warm climates (Halifax, Newfoundland, the Windward Islands, and Jamaica) in a short space of time. The hepatitis might have originated in the warm, and the inflammation of the thorax in the cold climate; especially as I could not presume, from the appearance of the left cavity of the thorax, that there were any seeds of consumption, nor the man of a consumptive habit; neither did I understand from himself that previously he had much cough or expectoration.

CASE 2.—“ Jane Henderson, a soldier’s wife of the royal artillery, aged 29 years, had been at Gibraltar two years and a half before her arrival at Jamaica; she was apparently a very strong, healthy woman, but at times addicted to the free use of ardent spirits. On her first complaining to me she was near her full time of pregnancy, and said that she had, for six months before, been much troubled with a pain in her right side, difficulty of breathing, and a small short cough, &c. which she attributed to the fatigue of washing linen, and a trifling fall she had from the platform in the barracks a considerable time before. I took as much blood from her as the nature of her situation and the climate would admit, and gave internally mild aperient medicines, with pectoral emulsions, &c. On examining her side, I could not observe any preternatural appearances, but she complained of much pain on its being pressed.

“ I was sent for two nights after this, to visit her, and, on my arrival at the barracks, found her delivered, and in fits, which continued, with very little intermission, till about two o’clock next morning, when she died.—The child was born alive, but died in a few minutes afterwards, and appeared to be nearly full

grown. The attendants informed me, that, during the efforts of labour, she complained that something had given way within her, and was immediately after that seized with convulsions."

Appearances on dissection.---"Part of the liver was found much enlarged, but the rest appeared tabid, and more than half destroyed by a large abscess, the matter of which had deluged the abdomen, and was lying on the surface of the viscera. The diaphragm was very much inflamed, and that part of it which was in contact with the diseased liver had suppurated, and an abscess opened a communication with the right cavity of the thorax, where a considerable quantity of the matter was lying. The contents of the pelvis were no ways different from the appearances after a natural labour.

"I imagine that the abscess of the liver had burst, and effused itself, during the efforts of labour, at the period when she complained of something giving way within her.—The quantity of matter was very great, and quite different from that in Piddle's case, as this was thin, dark coloured, and extremely offensive."

GENUS XVIII. SPLENITIS.

Inflammation of the Spleen.

Splenitis, *Sauv.* gen. 114. *Lin.* 36. *Vog.* 59. *Junck.* 67. *Sag.* gen. 313.

Lienis inflammatio, *Boerb.* 958. and *Van Swieten.* Comm.

Splenitis phlegmonodæa, *Sauv.* sp. 1. *Forest.* l. xx. obs. 5. 6.

De Haen, apud *Van Swieten,* p. 958.

Pleuritis splenica, *Sauv.* 19.

Splenalgia suppuratoria, *Sauv.* sp. 3.

1. *Description.*] This disease, according to *Juncker*, comes on with a remarkable shivering, succeeded by a most intense heat and very great thirst; a pain and tumor are perceived in the left hypochondrium, and the paroxysms for the most part assume a quartan form. When the patients expose themselves for a little to the free air, their extremities immediately grow very cold. If an hæmorrhagy happen, the blood flows out of the left nostril. The other symptoms are the same with those of the hepatitis. Like the liver, the spleen often is also subject to a chronic inflammation, which often happens after agues, and is called the *ague cake*, though that name is also frequently given to a scirrhus tumor of the liver succeeding intermittents.

2. *Causes, &c.*] The causes of this disease are in general the same with those of other inflammatory disorders; but those which

determine the inflammation to that particular part more than another, are very much unknown. It attacks persons of a very plethoric and sanguine habit of body rather than others.

3. *Prognosis.*] What has been said of the inflammation of the liver applies also to that of the spleen, though the latter is less dangerous than the former. Here also a vomiting of black matter, which in other acute diseases is such a fatal omen, sometimes proves critical, according to the testimony of Juncker. Sometimes the hæmorrhoids prove critical; but very often the inflammation terminates by scirrhus.

4. *Cure.*] This is not at all different from what has been already laid down concerning the hepatitis.

GENUS XIX. NEPHRITIS.

Inflammation of the Kidneys.

Nephritis, *Sauv.* gen. 115. *Lin.* 37. *Vog.* 65. *Sag.* gen. 314.
Nephritis vera, *Sauv.* sp. 1.

1. *Description.*] The nephritis has the same symptoms in common with other inflammations; but its distinguishing mark is the pain in the region of the kidney, which is sometimes obtuse, but more frequently pungent. The pain is not increased by the motion of the trunk of the body so much as a pain of the rheumatic kind affecting the same region. It may also frequently be distinguished by its shooting along the course of the ureter, and it is often attended with a drawing up of the testicle, and a numbness of the limb on the side affected; though indeed these symptoms most commonly attend the inflammation arising from a calculus in the kidney or ureter. The disease is also attended with frequent vomiting, and often with costiveness and colic pains. The urine is most commonly of a deep red colour, and is voided frequently and in a small quantity at a time. In more violent cases the urine is commonly colourless.

The other species of nephritis enumerated by authors are only symptomatic.

2. *Causes, &c.*] The remote causes of this disease may be various; as external contusion, violent or long-continued riding; strains of the muscles of the back incumbent on the kidneys; various acrids in the course of circulation conveyed to the kidneys; and perhaps some other internal causes not yet well known: the most frequent is that of calculous matter obstructing the *tubuli uriniferi*, or calculi formed in the pelvis of the kidney, and either sticking there or falling into the ureter.

3. An account of some diseases of the kidneys and bladder,

examined and explained by dissections, by Mr. Walter, professor at the Medico-Chirurgical College of Berlin, we find the following remarks which may not improperly be stated in this place. Speaking of the last-mentioned cause of *nephritis*, the author observes, that—"Every calculus in the kidneys originates in the interior of them, increasing from within towards without. Any heterogeneous matter, salt, earthy particles, blood, mucus, &c. remaining in one of the *calices* or *infundibula* in the kidneys, and not being carried away through the ureter by urine, causes a disposition to a stone. For forming such a calculus nature employs one or several *calices* or *infundibula*; and stones are, as it were, according to certain laws, but rarely generated in the other substance of the kidneys. The irritation of the foreign body occasioning a congestion of blood at the place of its seat, the growth of the calculus is promoted by the adhesion of similar particles. When the calculus is generating more in the middle of the kidneys, so as to be capable of extending itself equally; when the irritation is not become vehement enough to produce inflammation and suppuration, and the corruption of the kidneys proceeds slower than the growth of the calculus, this may increase to an extraordinary size, without the kidney's being in the least morbidly affected. The largest calculus of this kind in the collection of Mr. Walter's father, weighed *three ounces and a half and two scruples*.

"The gangrene in the kidneys is commonly the consequence of a calculus, but rarely of a previous vehement nephritis; it follows, when the inflammation occasioned by the irritation of the calculus extends to the whole substance of the kidneys, and continues a long time in a violent degree, and when the blood stagnates in the vessels; the substance of the kidneys is consumed by suppuration, and the putrid blood becomes extravasated, and is found sometimes quite dissolved.

"*The dropsy in the kidneys* is a disease, of which the cause is either to be sought for in the kidneys themselves, or in the parts adjacent to the ureter. It is always produced as soon as the passage in the ureter is obstructed; and stones therefore which remain in the ureter and stop it, indurations of the duodenum and pancreas, indurated and enlarged lymphatic glands about the ureters, tumors, &c. dropsies of the *uterus*, of the *ovaria*, and of the Fallopian tubes, may, by compressing the ureters, occasion a dropsy in the kidneys: an inflammation of the ureter is likewise able to cause an obstruction in them, by producing an adhesion of its internal coats. This disease, however, occurs more frequently in females than in males. Stones are seldom the only cause of it, and it happens frequently that they generate by the precipitation of saline and earthy particles, after the obstruction is already established. The kidneys are generally so changed by this disease,

that nothing remains of them but the external membrane; and they have from the extending fluidity, the appearance of a bladder. The urine, which, on account of the ureter being obstructed, cannot be carried to the bladder, stagnates in the ureter and kidneys, extending them to such a degree that the secretion is at first diminished, and at last entirely destroyed; and instead of urine, nothing but a lymphatic fluid is secreted by the remaining vessels, which, however, never becomes sharp or putrid. It is remarkable, that in a dropsy of the kidneys, fat is never found about them, which is always the case when the kidneys are destroyed by a calculus. In some rare cases it has been observed, that an obstruction of the ureter did not produce a dropsy, the urine being evacuated another way, by perspiration, &c."

3. *Prognosis.*] This is not different from that of other inflammatory diseases. The remote consequences, however, are essentially different. The kidneys are sometimes consumed, extended and excavated by topical suppuration, that nothing remains of them but the external membrane, and they resemble a bladder. This disease, however, may in some cases be cured, whereas the dropsy in the kidneys is always incurable, and brings on death at last.

4. *Cure.*] When any of those causes operating as inducing the inflammation still continue to act, the first object in the cure must be the removal of them; but the principal intention to be had in view, is the resolution of the inflammation which has already taken place. But when, notwithstanding efforts for this purpose, the disease terminates in suppuration, it must be the endeavour of the practitioner to promote the discharge of purulent matter, and the healing of the ulceration in the kidney.

These different objects are principally accomplished by bleeding, external fomentation, frequent emollient clysters, antiphlogistic purgatives, and by the free use of mild and demulcent liquids. The use of blisters is scarce admissible, or at least will require great care to avoid any considerable absorption of the cantharides.

Dr. Fordyce says it admits of a natural cure, viz. the urine grows high coloured, is secreted in greater quantity, and at last is copious, thick, and mixed with mucus, relieving, and gradually diminishing the pain and other symptoms, till the patient's health is restored.

It may also go off by *metastasis*, &c. as other internal inflammations; or it may terminate in gangrene and mortification, which, in the interior parts of the body, are almost constantly fatal, and nearly with the same symptoms. (Vide the Pleurisy.) In this case there is likewise an alteration of the urine, accompanied with *fætor*; or the inflammation may go off, and leave a

scirrhus, which is known from the patient being relieved, although the natural cure has not taken place, nor any symptom of suppuration appeared; from a sensible hardness sometimes continuing in the part; a *suppur* in the lower extremities on the side affected; and a diminution of the secretion of urine.

Or the kidney may suppurate, which is indicated by the common symptoms of internal suppuration.

The abscess breaks (1) into the *pelvis*; (2) into the cavity of the *abdomen*; (3) or lastly, externally.

(1) In the first case, the sense of weight, and distension, of the kidney (if any there were), goes off suddenly, and, at the same time, the urine is mixed with *pus*, which subsides to the bottom in a great quantity upon the breaking of the abscess, but afterwards in less.

If the matter is white, thick, and not fetid, the ulcer sometimes heals; otherwise a hectic fever comes on, and the patient is cut off: or, lastly, the ulcer may continue a long time without proving fatal. The ulcer generally heals soon, or not at all.

(2) If it break into the cavity of the *abdomen*, it kills. (Vide *Hepatitis*.)

(3) If it open externally, the urine comes away with the *pus*, and an ulcer is formed of very difficult cure.

Inflammation of the kidney should be distinguished from a stone obstructing the ureter, from inflammation of the *psoas muscle* and other adjacent parts, and from inflammation, and spasmodic or other pains, in the intestines.

The cure is to be performed by the medicines commonly used in internal inflammations; to which may be added the following:

(1) Gentle diuretics.

(No. 120.) ℞ Sem. Lini ʒʒ.

Sem. Petrosel. ʒʒ.

Aq. Font. Bullient. lbj.

Infundantur simul per Hor. ʒ. et cola.

Colaturæ adde Succ. Limonum,

Sacch. Alb. aa q. s. ad gratam acedinem dulcedinemque.

Bibat Poculum frequenter.

A moderately warm *semicupium* may also be used to promote the secretion of urine.

(2) Mild laxatives and clysters. (Vide Formulæ No. 44. and 34.)

(3) If there should be any external symptoms, fomentations and poultices may be used.

444 INFLAMMATION OF THE BLADDER:

(No. 121.) R. Flor. Chamæmel.

Vel, Summit. Absynth.

Vel, Summit. Centaur. minor. Manip. ij.

Rad. Bryon. Alb. recent. ℥j.

Folior. Malv. vel. Althææ Manip. j.

Contunde et leviter coque in aquæ fontis lib. iv.

Colatura utatur pro fora ter indies.

Adde herbis coctis ung. simp. ℥ij. Fiar Cataplasma,
part. adfect. applicandum.

Lying on the back, as it prevents the passage of the urine into the bladder, is to be avoided.

If the kidney should suppurate, the treatment is to be nearly the same as in suppurations of the liver. (Vide *Hepatitis*.) And the patient is also to take infusion of linseed, or decoction of althææ root, for his common drink, after the abscess is broken, in order to dilute the urine, and prevent it from stimulating the surface of the ulcer, which would hinder the cure.

Some have proposed the exhibition of the balsams of trees, to promote the granulation; but the bark appears to be preferable.

The management of the food, &c. in these suppurations, is to be the same as in the pulmonary consumption.

GENUS XX. CYSTITIS.

Inflammation of the Bladder.

Cystitis, *Sauv.* gen. 108. *Lin.* 31. *Vag.* 66. *Sag.* gen. 309.
Inflammatio vesicæ, *Hoffm.* II. 157.

The CYSTITIS from *Internal Causes*.

Cystitis spontanea, *Sauv.* sp. 1.

The CYSTITIS from *External Causes*.

Cystitis a cantharidibus, *Sauv.* sp. 2.

Cystitis traumatica, *Sauv.* sp. 3.

Inflammation of the exterior coats of the bladder differs from the abrasion, exulceration, or inflammation of the internal, or mucous membrane.

It is produced by the causes of internal inflammation; by the rubbing, or pressure of a stone; external hurts; and by strictures in the urethra,

The neck of the bladder is thicker than any other part, and more exposed to injury from the stone and bruises. The stone in the bladder, however, more commonly produces an inflammation, or abrasion of the mucous membrane, than this disease.

The inflammation begins with a violent pain in the region of the bladder, *i. e.* in the *perinæum*, or in the belly, immediately above the *pubis*, deep seated, and sometimes attended by a redness in these parts. If the neck be the part affected, there is a retention of urine, together with a constant *stimulus* to its evacuation; if the bottom be the part diseased, there is a continual dribbling, with great efforts to throw out a larger quantity at a time, which the patient conceives to be contained in the bladder. The symptoms are accompanied with frequent attempts to expel the *feces*, with which the *rectum* appears to the patient to be always loaded; these increase the pain very much, particularly when any *feces* are actually contained, and especially if they be hard. The pulse is frequent and hard, the extremities become cold, there is immense anxiety and restlessness, with sickness, vomiting, delirium, and the other symptoms of irritation, as in the inflammation of the intestines, and the patient for the most part is cut off in a short time.

It also frequently terminates in gangrene and mortification; the pain goes off, but the other symptoms continue, and the patient dies soon after. Or it may be carried off by an increased secretion of *mucus* from the internal membrane, gradually relieving the symptoms; or by a *metastasis*. Or if the disease should not be so violent, especially when the neck of the bladder is the part affected, it may proceed to suppuration, most of the symptoms going off; uncertain rigors and coldness taking place; and a difficulty in making water, or a total retention of it, with a constant irritation to its evacuation, or a *tenesmus*, with a sense of weight (as the abscess occupies the neck or *fundus*), remaining till the *pus* is evacuated.

The matter may make its way into the bladder, and come away with the urine, leaving an ulcer there: or into the cellular membrane, and from thence externally by the *perinæum*, after destroying the circumjacent parts in its passage, and producing a *sinuous* ulcer; or it may get through the *peritonæum* into the *abdomen*, when it generally brings on fatal symptoms. The ulcers in the bladder and *perinæum* are of difficult cure.

It should be distinguished from inflammations of the circumjacent part, and from retention of urine produced by other causes.

It is to be cured by the common means of *resolution* in internal inflammations; as bleedings, relaxants, &c. These are to be employed immediately on the appearance of the disease, and prosecuted with vigour, or it will soon be fatal. There should be

added gentle laxatives, or clysters, to keep the belly open, especially the first; as clysters by pressing on the bladder, when a part near the *rectum* is inflamed, may be detrimental, and should therefore only be used when there are indurated *fæces*.

(No. 34.) but in smaller quantity, is proper in this case; otherwise (No. 44.) may be exhibited twice a-day, or oftener, as there may be occasion.

If there should be external symptoms, the fomentations and poultices (No. 116.) are to be applied; taking care that they do no hurt by their pressure, and that the cloths or herbs be not too moist, lest the water should run upon the linen and bed clothes.

If there should be no external symptoms, the skin of the belly and *perinæum* is to be rubbed with (No. 62.) which is preferable to blisters, 'on account of the inconvenience of their application.

The drink should be mucilaginous decoctions; and if the urine be retained from a stricture in the neck of the bladder, only in small quantities.

In this case, too, it is necessary to evacuate the urine by art, to avoid gangrene and mortification; but this should be done with great caution. If, notwithstanding the use of these remedies, and after sufficient evacuation, a spasmodic contraction and pain should continue; opiates, as in inflammations of the intestines, may sometimes be useful.

If the bladder suppurate, the *pus* is to be evacuated as soon as possible, and the remedies already recommended in ulcers of the kidneys are to be employed.

The inflammation of the bladder from *internal causes* is a very rare disease; and when it does at any time occur, is to be cured in the same manner with other inflammations, avoiding only the use of cantharides. When the disease arises from the internal use of these flies, camphor is recommended, besides mucilaginous medicines, and particularly cooling and emollient clysters.

GENUS XXI. HYSTERITIS.

Inflammation of the UTERUS.

Hysteritis, *Lin.* 38. *Vog.* 63.

Metritis, *Sauv.* gen. 107. *Sag.* gen. 315.

Inflammatio et febris uterina, *Hoffm.* 11. 156.

1. *Description.*] This disease is often confounded with that called the *puerperal* or *child-bed fever*; but is essentially distinct from it, as will be shewn in its proper place. The inflammation of the uterus is often apt to terminate by gangrene: there is a pain in the head, with delirium; and the uterine region is so exceed-

ingly tender, that it cannot bear the most gentle pressure without intolerable pain. When the *fundus uteri* is inflamed, there is great heat, throbbing, and pain, above the pubes: if its posterior part, the pain is more confined to the loins and rectum, with a tenesmus; if its anterior part, it shoots from thence towards the neck of the bladder, and is attended with frequent irritation to make water, which is voided with difficulty; and if its sides or the ovaria are affected, the pains will then dart into the inside of the thighs.

2. *Causes, &c.*] Inflammations of the uterus, and indeed of the rest of the abdominal viscera, are very apt to take place in child-bed women; the reason of which seems to be the sudden change produced in the habit, and an alteration in the course of the circulating blood by the contraction of the uterus after delivery. The pressure of the gravid uterus being suddenly taken off from the *aorta descendens* after delivery, the resistance to the impulse of the blood passing through all the vessels derived from it, and distributed to the contiguous viscera, will be considerably lessened: it will therefore rush into those vessels with a force superior to their resistance; and, by putting them violently on the stretch, may occasion pain, inflammation, and fever. This contraction of the uterus also renders its vessels impervious to the blood which had freely passed through them for the service of the child during pregnancy; and consequently a much larger quantity will be thrown upon the contiguous parts, which will still add to their distension, and increase their tendency to inflammation.

3. *Prognosis.*] An inflammation of the uterus generally may be expected to produce an obstruction of the lochia; but the fever produced seldom proves fatal, unless the inflammation be violent, and end in a gangrene.

4. *Cure.*] This is to be attempted by the same general means already recommended, and the management of this disorder entirely coincides with that of the puerperal fever.

Dr. Fordyce says, it may be naturally cured by the *menstrua*, or *lochia*, breaking out plentifully; or after child-birth, or abortion, by the patient's falling into a constant, equal, gentle, long-continued sweat. Or it may terminate in gangrene and mortification, with the usual symptoms of internal mischief, and kill.

Or it may suppurate, with the common symptoms, and the abscess formed may break into the cavity of the *uterus*, bladder, or *rectum*, or externally, by the *perinæum*, or into the cavity of the *abdomen*. In this last case it is fatal, and in others leaves ulcers difficult of cure.

Or it may be cured by *metastasis*.

Or it may leave a *scirrhus* behind.

Inflammation of the womb in delicate or weak women after child-birth, where there is no hardnests, but great frequency of the

pulse, is for the most part fatal. The only remedies we can employ in this case are, the keeping the patient in bed moderately warm, exciting, if possible, a gentle, constant sweat, by *farinaceous* decoctions in small quantities at a time, but frequently repeated; and applying antispasmodic fomentations, and poultices, as (No. 116.), to the lower region of the belly, and external parts of generation. Bleeding increases the weakness without diminishing the inflammation; relaxants produce great sweating or purging, without relief; and all very considerable evacuations are hurtful. The belly not having hitherto been rubbed with stimulants and antispasmodics, it is worth while to try them, and (No. 85.) may be used: but blisters, besides the inconveniency of their application, are apt to render the pulse more frequent. In abortions, and labours, where the patient has not been so much weakened, when the pulse is hard and not very frequent, it is useful to take away blood, but this evacuation cannot in general be often repeated with advantage; and therefore the cure is afterwards to be committed to relaxants (No. 27.) and antispasmodic fomentations and poultices (No. 116), taking care that the first produce no purging, and keeping the patient in bed, moderately warm. When the *lochia* have stopped, stimulating *emmenagogues* have sometimes been used, in many cases, with manifest disadvantage, and seldom with good effect.

If the pain continues in these cases, notwithstanding the above treatment, opiates may sometimes be given with success, as in inflammations of the intestines.

When the inflammation attacks a womb not lately impregnated, the common remedies used in internal inflammations are to be employed, according as the disease is attended with general inflammation, or the symptoms of irritation.

We are always to guard against pressure on the part affected, whether that pressure be external, or arise from urine contained in the bladder, or from *feces* in the *rectum*: in the second of these cases this may be done by a catheter; and in the third by clysters, which, after labours where the patient is weak, should consist almost solely of watery fluids.

The food, when the patient is much reduced after labour, must be animal broths; otherwise *farinaceous* decoctions.

If the *uterus* should suppurate, we are to endeavour to procure an exit to the *pus* as soon as possible; which however can hardly be done, except when it points in the *perinæum*, where poultices of bread, milk, and oil, are in this case to be applied; and as soon as any fluctuation is felt, the abscess is to be opened.

In addition to what has here been said on internal inflammations, it is necessary to observe, that inflammations also sometimes arise in the other abdominal *viscera*; but being attended with symptoms similar to those already treated of, excepting for the

situation, requiring a similar treatment, and happening but seldom, they are not here enumerated.

GENUS XXII. RHEUMATISMUS.

The Rheumatism.

Rheumatismus, *Sauv.* gen. 185. *Lin.* 62. *Vog.* 138. *Boerb.* 1490.
Junck. 19.

Dolores rheumatici et arthritici, *Hoffm.* II. 317.

Myositis, *Sag.* gen. 301.

The Acute RHEUMATISM.

Rheumatismus acutus, *Sauv.* sp. 1.

Rheumatismus vulgaris, *Sauv.* sp. 2.

A. The LUMBAGO, or *Rheumatism in the Muscles of the Loins.*

Lumbago rheumatica, *Sauv.* gen. 212. *Sag.* p. 1.

Nephralgia rheumatica, *Sauv.* sp. 4.

B. The SCIATICA, *Ischias, or Hip-Gout.*

Ischias rheumaticum, *Sauv.* 213. sp. 10.

C. The Bastard PLEURISY, or *Rheumatism in the Muscles of the Thorax.*

Pleurodyne rheumatica, *Sauv.* gen. 148. sp. 3.

Pleuritis spuria, *Boerb.* 878.

The other species, which are very numerous, are all symptomatic; as,

Lumbago plethorica, *Sauv.* sp. 3.

Ischias sanguineum, *Sauv.* sp. 2.

Pleurodyne pethorica, *Sauv.* sp. 1.

Rheumatismus hystericus, *Sauv.* sp. 7.

Ischias hystericum, *Sauv.* sp. 7.

Pleurodyne hysterica, *Sauv.* sp. 6.

Rheumatismus fibratorius, *Sauv.* sp. 8.

Pleurodyne flatulenta, *Sauv.* sp. 4.

Pleurodyne a spasmate, *Sauv.* sp. 9.

Rheumatismus scorboticus, *Sauv.* sp. 4.

Lumbago scorbutica, *Sauv.* sp. 5.

- Pleurodyne scorbutica, *Sauv.* sp. 11.
 Ischias typhiliticum, *Sauv.* sp. 7.
 Pleurodyne venerea, *Sauv.* sp. 5.
 Lumbago sympathica, *Sauv.* sp. 13.
 a mesenterii glandulis induratis,
 a pancreate tumido, purulento, scirrhuso, putri,
 ab induratis pyloro, vena cava, pancreate,
 a rene scirrhuso, putrefacto,
 ab abscessu circa venæ cavæ bifurcationem,
 a vermibus intra renes,
 Lumbago a saburra, *Sauv.* sp. 8.
 Pleurodyne a cacochymia, *Sauv.* sp. 7.
 Rheumatismus saltatorius verminosus, *Sauv.* sp. 8.
 Ischias verminosum, *Sauv.* sp. 8.
 Pleurodyne verminosa, *Sauv.* sp. 2.
 Rheumatismus metallicus, *Sauv.* sp. 10.
 Lumbago a hydrothorace, *Sauv.* sp. 14.
 Lumbago pseudoischuria, *Sauv.* sp. 16.
 Pleurodyne a rupto œsophago, *Sauv.* sp. 20.
 Pleurodyne rachitica, *Sauv.* sp. 13.
 Ischias a sparganosi, *Sauv.* sp. 5.
 Pleurodyne catarrhalis, *Sauv.* sp. 14.
 Rheumatismus necroseos, *Sauv.* sp. 14.
 Rheumatismus dorsalis, *Sauv.* sp. 11.
 Lumbago a satyriasi, *Sauv.* sp. 15.
 Rheumatismus febricosus, *Sauv.* sp. 9.
 Lumbago febrilis, *Sauv.* sp. 4.
 &c. &c.

1. *Description.*] The rheumatism is particularly distinguished by pains affecting the joints, and for the most part the joints alone; but sometimes also the muscular parts. Very often they shoot along the course of the muscles from one joint to another, and are always much increased by the action of the muscles belonging to the joint or joints affected. The larger joints are those most frequently affected, such as the hip-joint and knees of the lower extremities, and the shoulders and elbows of the upper bones. The ancles and wrists are also frequently affected; but the smaller joints, such as those of the toes or fingers, seldom suffer. Sometimes the disease is confined to one part of the body, yet very frequently it affects many parts of it; and then it begins with a cold stage, which is immediately succeeded by the other symptoms of pyrexia, and particularly by a frequent, full, and hard pulse. Sometimes the pyrexia is formed before any pains are perceived; but more commonly pains are felt in particular parts before any symptoms of pyrexia occur. When no pyrexia is present, the pain may be confined to one joint only; but when any

considerable pyrexia takes place, though the pain may chiefly be felt in one joint, yet it seldom happens that the pains do not affect several joints, often at the very same time, but for the most part shifting their place, and having abated in one joint they become more violent in another. They do not commonly remain long in the same joint, but frequently shift from one to another, and sometimes return to joints formerly affected; and in this manner the disease often continues for a long time. The fever attending these pains has an exacerbation every evening, and is most considerable during the night, when the pains also become more violent; and it is at the same time that the pains shift their place from one joint to another. These seem to be also increased during the night by the body being covered more closely, and kept warmer.

A joint, after having been for some time affected with pain, commonly becomes also affected with some swelling and redness, which is painful to the touch. It seldom happens that a swelling coming on does not take off the pain entirely, or secure the joint against a return of it. This disease is commonly attended with more or less sweating, which occurs early, but is seldom free or copious, and seldom either relieves from the pains or proves critical. The urine is high coloured, and in the beginning without sediment. This, however, does not prove entirely critical, for the disease often continues long after such a sediment has appeared in the urine. The blood is always fizy. The acute rheumatism differs from all other inflammatory diseases, in not being liable to terminate in suppuration: this almost never happens; but the disease sometimes produces effusions of a transparent gelatinous fluid into the sheaths of the tendons: but if these effusions be frequent, it is certain that the liquor must very frequently be absorbed; for it very seldom happens, that considerable or permanent tumors have been produced, or such as required to be opened and to have the contained fluid evacuated. Such tumors, however, have sometimes occurred, and the opening made in them has produced ulcers very difficult to heal.

Sometimes the rheumatism will continue for several weeks; but it seldom proves fatal, and it is rare that the pyrexia continues to be considerable for more than two or three weeks. While the pyrexia abates in its violence, if the pains of the joints continue, they are less violent; more limited in their place, being confined commonly to one or a few joints only; and are less ready to change their place.

It is often a very difficult matter to distinguish rheumatism from gout: but in rheumatism there in general occurs much less affection of the stomach; it affects chiefly the larger joints, and several of these are often affected with severe pain at the same time; it occurs at an earlier period of life than gout; it is not

observed to be hereditary ; and it can in general be traced to some obvious exciting cause, particularly to the action of cold.

2. *Causes, &c.*] This disease is frequent in cold, and more uncommon in warm, climates. It appears most frequently in autumn and spring ; less frequently in winter, while the frost is constant ; and very seldom during the heat of summer. It may, however, occur at any season, if vicissitudes of heat and cold be for the time frequent. For the most part, the acute rheumatism arises from the application of cold to the body when unusually warm ; or when the cold is applied to one part of the body while the other parts are kept warm ; or lastly, when the application of the cold is long continued, as when moist or wet clothes are applied to any part of the body.—These causes may affect persons of all ages ; but the rheumatism seldom appears either in very young or in elderly persons, and most commonly occurs from the age of puberty to that of thirty-five. These causes may also affect persons of any constitution, but they most commonly affect those of a sanguine temperament.

With respect to the proximate cause of rheumatism, there have been various opinions. It has been imputed to a peculiar acrimony ; of which, however, there is no evidence ; and the consideration of the remote causes, the symptoms, and cure, render it very improbable. A disease of a rheumatic nature, however, may be occasioned by an acrid matter applied to the nerves, as is evident from the tooth-ach, a rheumatic affection generally arising from a carious tooth. Pains arising from deep-seated suppurations may also resemble the rheumatism ; and many cases have occurred in which such suppurations occasioned pains resembling the lumbago and ischias ; but from what hath been already said, it seems improbable that ever any rheumatic case should end in suppuration.

The proximate cause of rheumatism hath by many been supposed to be a lentor in the fluids obstructing the vessels of the part ; but in the former part of this treatise, sufficient reasons have been already laid down for rejecting the doctrine of lentor. While we cannot therefore find either evidence or reason for supposing that the rheumatism depends on any change in the state of the fluids, we must conclude that the proximate cause of it is the same with that of other inflammations not depending upon a direct stimulus.

In the case of rheumatism, it is supposed that the most common remote cause of it, that is, cold applied, operates especially on the vessels of the joints, these being less covered by a cellular texture than those of the intermediate parts of the limbs. It is farther supposed, that the application of cold produces a constriction of the extreme vessels, and at the same time an increase of tone, or phlogistic diathesis in the course of them, from which arises an increased impetus of the blood, and at the same time a resistance

to the free passage of it, and consequently inflammation and pain. It is also supposed, that the resistance formed excites the *vis medicatrix* to a further increase of the impetus of the blood; and to support this, a cold stage arises, a spasm is formed, and a pyrexia and phlogistic diathesis are produced in the whole system.

Hence the cause of rheumatism appears to be exactly analogous to that of inflammations depending on an increased afflux of blood to a part while it is exposed to the action of cold. But there seems to be further in this disease some peculiar affection of the muscular fibres. These seem to be under some degree of rigidity; and therefore less easily admit of motion, and are pained upon the exertions of it. This also seems to be the affection which gives opportunity to the propagation of pains from one joint to another, and which are most severely felt in the extremities terminating in the joints, because beyond these the oscillations are not propagated. This affection of the muscular fibres explains the manner in which strains and spasms produce rheumatic affections; and, on the whole, shows, that with an inflammatory affection of the sanguiferous system, there is also in rheumatism a peculiar affection of the muscular fibres, which has a considerable share in producing the phenomena of the disease. And it would even appear, that in what has commonly been called *acute rheumatism*, in contradistinction to the chronic, of which we are next to treat, there exists not only a state of active inflammation in the affected parts, but also of peculiar irritability; and that this often remains after the inflammation is very much diminished, or has even entirely ceased. Hence a renewal of the inflammation and recurrence of the pain take place from very slight causes; and in the treatment of the disease, both the state of inflammation and irritability must be had in view.

3. *Cure.*] For counteracting the state of active inflammation, the chief aim of the practitioner must be to diminish the general impetus of the circulation, and the impetus at the part particularly affected. For counteracting the state of irritability, he must endeavour to remove the disposition to increased action in the vessels; to prevent the action of causes exciting painful sensations; and to obviate their influence on the part. The cure therefore requires, in the first place, an antiphlogistic regimen, and particularly a total abstinence from animal food, and from all fermented or spirituous liquors; substituting a mild vegetable or milk diet, and the plentiful use of soft diluting liquors. On this principle also, blood-letting is the chief remedy for acute rheumatism. The blood is to be drawn in large quantity; and the bleeding is to be repeated in proportion to the frequency, fulness, and hardness of the pulse, and the violence of the pain. For the most part, large and repeated bleedings during the first days of the

disease seem to be necessary, and accordingly have been very much employed: but to this some bounds are to be set; for very profuse bleedings occasion a slow recovery, and if not absolutely effectual, are apt to produce chronic rheumatism.

To avoid that debility of the system which general bleedings are apt to occasion, the urgent symptom of pain may be often relieved by topical bleedings; and when any swelling or redness have come upon a joint, the pain may very certainly be relieved by topical bleedings: but as the pain and continuance of the disease seem to depend more upon the phlogistic diathesis of the whole system than upon the affection of particular parts, so topical bleedings will not supply the place of the general bleedings proposed above.

To take off the phlogistic diathesis prevailing in this disease, purging may be useful, if procured by medicines which do not stimulate the whole system, as neutral salts, and other medicines which have a refrigerant power. Vide Formulæ, No. 3, 4, 19, 20, 44, &c. Purging, however, is not so useful as bleeding in removing the phlogistic diathesis; and when the disease has become general and violent, frequent stools are inconvenient, and even hurtful, by the motion and pain which they occasion. Dr. Saunders orders the following:

(No. 122.) ℞ Nitri purificati gr. x.

Pulv. tragacanth. comp ʒj.

Conterantur ut fiat pulvis, ter quotidie sumendus.

Next to blood-letting, nothing is of so much service, both in alleviating the pains in this disease and in removing the phlogistic diathesis, as the use of sudorifics; and of all the medicines belonging to this class, the *pulv. ipecac. comp.* which has commonly been known by the name of Dover's powder, is the most convenient and effectual. Copious sweating, excited by this medicine, and supported for ten or twelve hours by tepid diluents, such as decoction of the woods, or the like, will in most instances produce a complete remission of the pain: and indeed, by this practice, combined with blood-letting and proper regimen, the disease may often be entirely removed.

After proper evacuations, Dr. Saunders recommends the following:

(No. 123.) ℞ Liquoris volatilis cornu cervi gutt. xx.

Tincturæ colom bæ ʒj.

Aquæ cinnamomi

Aquæ distillatæ sing. ʒvj. Misce.

Fiat Haustus, hora prima pomeridiana, et sexta vespertina, quotidie sumendus.

(No. 124.) \mathcal{R} Antimon. tartarifat.
 Opii purificati
 Calomel. fing. (in pulv. trit.) gr. v.
 Conservi rosæ rubr. q. s.

Fiat pilulæ decem, unam quarum capiat omni nocte.

The late Dr. Hugh Smith, who treated this disease very successfully, says, the acute rheumatism is to be remedied by a treatment greatly analogous to that which is proper in the acute fever, as its causes and events are nearly the same. He gives the following formulæ :

(No. 125.) \mathcal{R} Aq. fontan. $\mathfrak{z}\mathfrak{j}\mathfrak{ss}$.
 Sp. Nuc. Mosch. $\mathfrak{z}\mathfrak{j}$.
 Sal. corn. cerv. vol. $\mathfrak{g}\mathfrak{ss}$. ad $\mathfrak{g}\mathfrak{j}$.
 Nitri gr. xv. ad $\mathfrak{g}\mathfrak{j}$.
 Syr. croci, $\mathfrak{z}\mathfrak{j}$.

M. ft. Haust. quarta vel sexta quaque hora sumend.

Vel (No. 126.) \mathcal{R} Julep. e camphor.
 Aq. fontan. aa $\mathfrak{z}\mathfrak{j}$.
 Vin. antimonial. $\mathfrak{z}\mathfrak{j}$.
 Nitri gr. xv. ad $\mathfrak{g}\mathfrak{j}$.

M. ft. Haust. quinta quaque hora sumend.

In case of great pain, the following sudorific bolus may be taken at bed-time, and repeated every night as occasion may require :

(No. 127.) \mathcal{R} Extract. thebaic. gr. iij.
 Pulv. rad. ipecacuan. gr. iiij.
 Nitri purificati
 Tartar. vitriolat. aa $\mathfrak{g}\mathfrak{ss}$.
 Syr. croci, q. s. ut ft. Bolus.

Vel (No. 128.) \mathcal{R} Sal. tartar. gr. xv.
 Pulv. rad. hellebor. alb.
 ——— liquorit. aa. gr. vj.
 Extract. thebaic. gr. iij. ad v.

M. ft. Pulvis.

Vel (No. 129.) \mathcal{R} Ol. anisi $\mathfrak{z}\mathfrak{j}\mathfrak{ss}$ ad $\mathfrak{z}\mathfrak{i}\mathfrak{j}$.
 Sumat ex haustul. cujusvis liquor. superbibat etiam æger, $\mathfrak{t}\mathfrak{b}\mathfrak{j}$. feri lact. vinos. tenuis. vel aquæ hor. vel alii alicujus potulenti diluent. donec copiose disfluat sudor.

If the extremities should swell, and be very full of pain, leeches may be applied to the tumified parts. Warm attenuating cataplasms may likewise be applied to advantage.

(No. 130.) \mathcal{R} Farin. secalis $\mathfrak{t}\mathfrak{b}\mathfrak{j}$.
 Fermenti veter. acris $\mathfrak{z}\mathfrak{i}\mathfrak{i}\mathfrak{j}$.
 Sal. commun. $\mathfrak{z}\mathfrak{i}\mathfrak{j}$.
 Aq. tepid. q. s.

These, being wrought into a paste, should be wrapt round

the part affected as warm as may be, and renewed morning and evening.

This disease frequently, after some days, puts on the appearance of an intermittent. The bark under these circumstances becomes a sovereign remedy; and, indeed, whether this should be the case or not, when plentiful sweats break out, and the urine deposits a copious sediment, the bark will by all means be advisable, and greatly cut short the disease.

(No. 131.) \mathcal{R} Decoct. cort. Peruv. $\mathfrak{z}\text{ss}$.

Extract. cort. Peruv. $\mathfrak{z}\mathfrak{ss}$.

Tinct. cort. aurant.

Syr. croci, aa $\mathfrak{z}\mathfrak{ss}$.

M. ft. Haust. tertia vel quarta quaque hora sumendus.

By the early use of this remedy where a complete intermission from pain is obtained, the necessity of repeated blood-letting and sweating is often superseded; but where a complete remission cannot be obtained, it has been suspected by some to be hurtful: and in these cases, when blood-letting and sudorifics have been pushed as far as may be thought prudent without being productive of the desired effect, very great benefit is often obtained from the use of calomel combined with opium, as recommended in the Edinburgh Medical Commentaries, by Dr. Hamilton of Lynn-Regis.

Vide p. 394.

In this disease, external applications are of little service. Fomentations in the beginning of the disease rather aggravate than relieve the pains. The rubefacients and camphire (No. 61.) are more effectual: but they commonly only shift them from one part to another, and do not prove any cure of the general affection. Blistering may also be very effectual in removing the pain from a particular part; but will be of little use, except where the pains are much confined to one place. Vide (No. 92.)

ARTHRODYNIA, or *Chronic Rheumatism*.

Rheumatismus chronicus Auctorum.

1. *Description.*] When the pyrexia attending the acute rheumatism has ceased; when the swelling and redness of the joints are entirely gone, but pains still continue to affect certain joints, which remain stiff, feel uneasy upon motion, changes of weather, or in the night-time only; the disease is then called the *chronic rheumatism*, as it often continues for a very long time.

The limits between the acute and chronic rheumatisms are not always exactly marked. When the pains are still ready to shift their place; when they are especially severe in the night-time; when, at the same time, they are attended with some degree of

pyrexia, and with some swelling, and especially some redness, of the joints; the disease is to be considered as partaking of the nature of the acute rheumatism. But when there is no longer any degree of pyrexia remaining; when the pained joints are without redness; when they are cold and stiff; when they cannot easily be made to sweat; or when, while a free and warm sweat is brought out on the rest of the body, it is only clammy and cold on the pained joints; and when, further, the pains of these are increased by cold, and relieved by heat applied to them; the case is to be considered as that of a purely chronic rheumatism; or perhaps more properly the first of the conditions now described may be termed the state of irritability, and the second the state of atony.

The chronic rheumatism, or rather the atonic, may affect different joints; but is especially apt to affect those which are surrounded with many muscles, and those of which the muscles are employed in the most constant and vigorous exertions. Such is the case of the vertebræ of the loins, the affection of which is named *lumbago*; or of the hip-joint, when the disease is named *ischias* or *sciatica*.

Violent strains and spasms occurring on sudden and somewhat violent exertions, bring on rheumatic affections, which at first partake of the acute, but very soon change into the nature of the chronic, rheumatism.—Such are frequently the *lumbago*, and other affections, which seem to be more seated in the muscles than in the joints. The distinction of the rheumatic pains from those resembling them which occur in the syphilis and scurvy must be obvious, either from the seat of the pains, or from the concomitant symptoms peculiar to those diseases. The distinction of the rheumatism from the gout will be more fully understood from what is laid down under the genus *Podagra*.

2. *Causes, &c.*] The phenomena of the purely chronic rheumatism lead us to conclude, that its proximate cause is an atony both of the blood-vessels and of the muscular fibres of the part affected, together with such a degree of rigidity and contraction in the latter as frequently attend them in a state of atony: and indeed this atony, carried to a certain extent, gives rise to a state of paralysis, with an almost total loss of motion in the affected limbs. The paralytic state of rheumatism, therefore, may be pointed out as a fourth condition of the disease, often claiming the attention of the practitioner.

3. *Cure.*] From the view just now given of the proximate cause of chronic rheumatism, the chief indication of cure must be, to restore the activity and vigour of the part, which is principally to be done by increasing the tone of the moving fibres, but which may sometimes also be aided by giving condensation to the simple solid. When, however, the disease has degenerated into

the state of paralysis, the objects to be aimed at are, the restoration of a due condition to the nervous energy in the part affected; the obtaining a free circulation of blood through the vessels of the part; and the removal of rigidity in membranes and ligaments.

For answering these purposes, a great variety of remedies, both external and internal, are had recourse to. The chief of the external are, the supporting the heat of the part, by keeping it constantly covered with flannel; the increasing of the heat of the part by external heat, applied either in a dry or humid form; the diligent use of the flesh-brush, or other means of friction; the application of electricity in sparks or shocks; the application of cold water by affusion or immersion; the application of essential oils of the most warm and penetrating kind.

The late Dr. Hugh Smith recommends the following plaster:
(No. 132.) \mathcal{R} Emplast. com. cum gum. $\mathfrak{z}\text{j}$.

—— epispastic. $\mathfrak{z}\text{j}\mathfrak{s}$.

Gum. euphorbii pulv. $\mathfrak{z}\text{j}$.

M. ft. emplast. super alutam extendend. et loco dolenti applicand.

The application of salt brine has proved useful; so has the employment of the Bath waters or of the vapour baths, either to the body in general or to particular parts; and, lastly, the employment of exercise, either of the part itself as far as it can easily bear, or by riding or other modes of gestation.

The internal remedies are, large doses of essential oils drawn from resinous substances, such as turpentine; substances containing such oils, as guaiacum; also volatile alkaline salts.

Dr. Saunders recommends the following formulæ:

(No. 133.) \mathcal{R} Guaiaci gummi-resin. in pulv. trit.

Mithridat. utriusq. gran. xv.

Terantur simul, et syrupo aliquo, fiat bolus omni nocte capiendus.

(No. 134.) \mathcal{R} Tincturæ guaiac. ammoniat. $\mathfrak{z}\text{j}$. ad $\mathfrak{z}\mathfrak{s}$.

Decocti hordei $\mathfrak{z}\text{iv}$. Misce.

Fiat Haustus bis die sumendus.

These or such-like medicines are directed to procure sweat; and calomel, or some other preparation of mercury, in small doses, may be continued for some time.

Dr. Hugh Smith treated this disease in the following way. He says, the chronic rheumatism is to be remedied by the heating, attenuating, sudorific medicines.

(No. 135.) \mathcal{R} Gum. guaiac. $\mathfrak{g}\text{j}$. (solv. vit. ovi)

Adde Aq. cinnam. ten.

—— fontan. aa. $\mathfrak{z}\text{vj}$.

Tinct. guaiac. vol. $\mathfrak{z}\text{j}$.

Syr. croci, $\mathfrak{z}\text{j}\mathfrak{s}$.

M. ft. Haust. omni nocte hora decubitûs sumendus.

Vel (No. 136.) ℞ Mercurii calcinat. gr. j. ad gr. ij.
 Vitri antimonii pulv. subtiliss. gr. j. ad gr. jss.
 Extract. thebaic. gr. ss.
 Conf. cynosbat. q. s. ut fit. bol. omni nocte hor.
 decubitus sumend.

(No. 137.) ℞ Pulv. ari comp. ʒss.
 Rad. serpent. virg. ʒss.
 Syr. croci, q. s. ut. fit. bol. man. et vesp. sumend.

The bark is here likewise useful.

(No. 138.) ℞ Decoct. cort. Peruv. ʒij.
 Tinct. guaiaci vol.
 Syr. croci aa ʒj.

M. fit. Haust. sexta vel octava quaque hora sumend.

The Haustus guaiaci of St. George's hospital seems also worthy of attention in this disease.

(No. 139.) ℞ Guaiaci in pulv. trit. ʒj.
 Mucilag. gum. arab. ʒss.
 Sp. Pimento ʒj.
 Aquæ distillatæ ʒiss.

Contere guaiacum cum mucilagine, et adjice aquam.

Also the following, from the Pharmacopœia of St. Bartholomew's:

(No. 140.) ℞ Guaiaci gummi-resinæ pulverati ʒj.
 Pulv. ipecacuanhæ comp. gr. x.
 Conf. Cynosbati q. s. Fiat Bolus omni nocte sumendus.

(No. 141.) ℞ Olei succini rectificati gutt. xx.
 Mucilag. arabici gummi ʒss.
 Aquæ pimento ʒiss.

Tere oleum cum mucilagine, et adde aquam pimento, et fiat Haustus ter die sumendus.

Or the following, employed at St. Thomas's:

(No. 142.) ℞ Gummi guaiaci pulverati
 Conservæ sambuci sing. ʒss.
 Syrupi simplicis q. s. Fiat Bolus omni nocte sumendus.

Similar compositions, employed in other public medical institutions in London, might be selected, but the foregoing offer a sufficient variety to the choice of the practitioner.

Besides these, there are several narcotic medicines recommended. The cicuta, aconitum, and hyosciamus, have in particular been highly extolled; and an infusion of the *rhododendron chrysanthemum* is said to be employed by the Siberians with very great success. An account of the Siberian mode of practice is given by Dr. Matthew Guthrie of Peterburgh, in the fifth volume of the Edinburgh Medical Commentaries, and has been followed with success at other places.

The following remarks on the most effectual remedies in rheumatic affections appear in the Medical and Physical Journal. "There are rheumatic epidemics," says the writer, "in which the diseases, although they derive their origin from the same source, exhibit so different and diversified a form, that it requires the sagacity of a very attentive observer, to discover their common origin, their corresponding nature, and consequently to ascertain the most accurate indications of cure.

"Upon the whole, it deserves to be remarked, that the effect of the translated rheumatic matter (*metastasis*) may be extremely different, according as it is of an acrid, inflammatory, or phlegmatic nature; according to the constitution of the whole body, and the individual condition of the part affected. This matter, or humour (for what else can it be called by the nervous and chemical pathologist?) generally settles on that internal part of the body, which has previously been weakened, either naturally, or by disease, or by other accidental circumstances. Hence we find that rheumatism principally attacks such external parts as have been in a certain degree debilitated by contusions, wounds, ruptures, dislocations, sprains, &c. Hence also it happens, that such individuals are sensible of every change of the atmosphere, which affects those parts, and which, as it is ludicrously said, converts their bodies into living barometers. To the same or similar causes it must be ascribed, that in certain anomalous fevers, the diseased matter sometimes settles on those parts which formerly were subject to rheumatism or erysipelatous affections, and that the period of the disease is in this manner determined: such, therefore, may be aptly called critical rheumatisms.

"The most effectual method pursued in the cure of chronic rheumatism, whether arising from a venereal taint in the constitution, or other causes, is that recommended by Professor Cerillo of Naples. It principally consists of the following simple mercurial ointment, half a drachm of which is to be rubbed in, on the sole or soles of the feet, every evening previous to going to bed: (No. 143.) ℞ Hydrarg. muriat. subtiliss. pulv. drachm. j.

Axung. porc. Unc. j.

Terantur per hor. un. et dimid. ut fiat Unguentum.

"The efficacy of this remedy we find recorded in the *Journal de Médecine*, tom. LIX; in Dr. Richter's *Chirurgical Library* (in German), published at Gottingen, vol. VII. p. 527 and 528.

"According to the accounts given by Drs. Cheyne and Home, a mixture consisting of two drachms of spirit of turpentine and one ounce of honey, two teaspoonsful of which were taken every morning and evening, had an uncommon effect in promoting the discharge of urine, and relieving, in a few days, a patient who had been afflicted for near a twelvemonth, with that species of rheumatism termed *ischias*. But Dr. Vogel, of Rostock, an

eminent writer and practitioner, observes, that turpentine will relieve only that particular kind of pain before alluded to, and be of no avail in any other species of rheumatic affection. Nor does it always operate as a diuretic, and yet afford relief: sometimes, however, it is attended with no beneficial effects. He further remarks, that the extract of the *aconitum*, with the proper addition of *camphor*, in progressive doses, have *uniformly* proved successful in Germany; and that Dr. Herz, a respectable physician of Berlin, in one case, increased the dose of the *aconitum*, *even to half a drachm!* a case which almost terminated fatally; hence the necessity of attending to a certain *maximum* for a dose, which ought never to be exceeded without the greatest precaution.

“In the *nervous* ischias, another foreign practitioner, Mr. Trampel, strongly recommends the use of pills made of *fulph. antim. aur.* and *extr. opii*, in due proportions, to be increased to such a dose as the patient can conveniently bear, and to be continued until all the pains have subsided.”

Another very remarkable and instructive observation relative to the treatment of rheumatism we cannot withhold from our readers, as it is registered in Vogel's Practical Manual, second edit. (in German) vol. III. p. 447; and in Baldinger's New Magazine, vol. X. No. 2. p. 170.—Singular as it may appear to the superficial observer, it cannot be denied that the following process is founded on the established laws of the animal economy. It merely consists in gently beating the painful part of the hip or loins with a thin piece of whalebone, regularly several times a day, and immediately after it covering the thigh afflicted with bags containing warm sand. This remedy is originally derived from an ingenious interpretation of a passage in Suetonius, according to whom, the Emperor Augustus was relieved (*remedio arenarum atque arundinum*) in a similar manner.

The most important and satisfactory authors who have treated on this disease are the following:—*Ballonius*; *Riviere*; *Morgagni*, L. IV. Ep. 57; *Huxham*; *Sydenham*, Sect. VI. Cap. v.; *Stæcker*, Ann ii.; *De Haen*, Tom. IV. Cap. v.; *Van Swieten*, Tom. V.; *Sarcone*; *Pringle*; *Monro*; *Brocklesby*; *Home*; *Baldinger*; *Macbride*; *R. E. Vogel*; *S. G. Vogel*; *Cullen*, *Clark*; *Tissot*; *Corruni*; *Smith*; and particularly *Stoll*, in his *Ratio Medendi*, Part iii. in the chapter entitled “*De Natura et Indole Dysentericæ*.”

GENUS XXIII. ODONTALGIA, the TOOTH-ACH.

Odontalgia, *Sauv.* gen. 198. *Lin.* 45. *Vog.* 145. *Sag.* gen. 157. *Junck.* 25.

Odontalgia sive rheumatismus odontalgicus, *Heffm.* II. 330.

Odontalgia cariiosa, *Sauv.* sp. 1.

- Odontalgia scorbutica, *Sauv.* sp. 4.
 Odontalgia catarrhalis, *Sauv.* sp. 3.
 Odontalgia arthritica, *Sauv.* sp. 6.
 Odontalgia gravidarum, *Sauv.* sp. 2.
 Odontalgia hysterica, *Sauv.* sp. 3.
 Odontalgia stomachica, *Sauv.* sp. 9.

1. *Description.*] This well-known disease makes its attack by a most violent pain in the teeth, most frequently in the *molars*, more rarely in the *incisories*, reaching sometimes up to the eyes, and sometimes backward into the cavity of the ear. At the same time there is a manifest determination to the head, and a remarkable tension and inflation of the vessels takes place, not only in the parts next to that where the pain is seated, but over the whole head.

2. *Causes, &c.*] The tooth-ach is sometimes merely a rheumatic affection, arising from cold, but more frequently from a carious tooth. It is also a symptom of pregnancy, and takes place in some nervous disorders; it may attack persons at any time of life, though it is most frequent in the young and plethoric.

3. *Cure.*] Many empirical remedies have been proposed for the cure of the tooth-ach, but none have in any degree answered the purpose. When the affection is purely rheumatic, blistering behind the ear will almost always remove it; but when it proceeds from a carious tooth, the pain is much more obstinate. In this case it has been recommended to touch the pained part with a hot iron, or with oil of vitriol, in order to destroy the aching nerve; to hold strong spirits in the mouth; to put a drop of oil of cloves, or an opium pill, into the hollow of the tooth.

But one of the most useful applications is strong nitrous acid, diluted with three or four times its weight of spirit of wine, and introduced into the hollow of the tooth, either by means of an hair pencil or a little cotton. When the constitution has had some share in the disease, the Peruvian bark has been recommended, and perhaps with much justice, on account of its tonic and antiseptic powers. When the pain is not fixed to one tooth, leeches, applied to the gum, are of great service. But very often all the foregoing remedies will fail, and the only infallible cure is to draw the tooth, which, as well as the treatment in general, belongs to SURGERY.

GENUS XXIV. PODAGRA, the Gout,

Podagra, *Vog.* 175. *Boerh.* 1254.

Febris podagrica, *Vog.* 69.

Arthritis, *Sauv.* gen. 183. *Lin.* 60. *Vog.* 139. *Sag.* gen. 142.

Dolor podagricus et arthriticus verus, *Hoffm.* II. 339.

Dolores arthritici, *Hoffm.* II. 317.

Affectus spailico-arthritici, *Junck.* 46.

Sp. I. The *Regular* GOUT.

Arthritis podagra, *Sauv.* sp. 1.

Arthritis rachialgica, *Sauv.* sp. 11.

Arthritis æstiva, *Sauv.* sp. 4.

Sp. II. The *Atonic* GOUT.

Arthritis melancholica, *Sauv.* sp. 6.

Arthritis hiemalis, *Sauv.* sp. 2.

Arthritis chlorotica, *Sauv.* sp. 5.

Arthritis asthmatica, *Sauv.* sp. 9.

Sp. III. The *Retrocedent* GOUT.

Sp. IV. The *Misplaced* GOUT.

1. *Description.*] What we call a *paroxysm of the gout* is principally constituted by an inflammatory affection of some of the joints. This sometimes comes on suddenly, without any warning, but is generally preceded by several symptoms; such as the ceasing of a sweating which the feet had been commonly affected with before; an unusual coldness of the feet and legs; a frequent numbness, alternating with a sense of prickling along the whole of the lower extremities; frequent cramps of the muscles of the legs; and an unusual turgescence of the veins.

While these symptoms take place in the lower extremities, the body is affected with some degree of torpor and languor, and the functions of the stomach in particular are more or less disturbed. The appetite is diminished; and flatulency or other symptoms of indigestion, are felt. These symptoms take place for several days, sometimes for a week or two, before a paroxysm comes on; but commonly, upon the day immediately preceding it, the appetite becomes keener than usual.

The circumstances of paroxysms are chiefly the following. They come on most commonly in the spring, and sooner or later according as the vernal heat succeeds sooner or later to the winter's cold; and, perhaps, sooner or later also, according as the body may happen to be more or less exposed to vicissitudes of heat and cold.

The attacks are sometimes felt first in the evening, but more commonly about two or three o'clock in the morning. The pa-

roxyfm begins with a pain affecting one foot, most commonly in the ball or first joint of the great toe, but sometimes in other parts of the foot. With the attack of this pain there is commonly more or less of a cold shivering; which, as the pain increases, gradually ceases; and is succeeded by a hot stage of pyrexia, which continues for the same time with the pain itself. From the first attack, the pain becomes, by degrees, more violent, and continues in this state with great restlessness of the whole body till next midnight, after which it gradually remits; and, after it has continued for twenty-four hours from the commencement of the first attack, it commonly ceases almost entirely; and, with the coming on of a gentle sweat, allows the patient to fall asleep. The patient, upon coming out of his sleep in the morning, finds the pained part affected with some redness and swelling, which, after having continued for some days, gradually abate.

When a paroxysm has thus come on, although the violent pain after twenty-four hours be considerably abated, the patient is not entirely relieved from it. For some days he has every evening a return of more considerable pain and pyrexia, and these continue with more or less violence till morning. After going on in this manner for several days, the disease sometimes goes entirely off, not to return till after a long interval.

When the disease, after having thus remained for some time in a joint, ceases entirely, it generally leaves the person in very perfect health, enjoying greater ease and alacrity in the functions of both body and mind than he had for a long time before experienced.

At the beginning of the disease, the returns of it are sometimes only once in three or four years: but as it advances, the intervals become shorter, and at length the attacks are annual; afterwards they come twice each year; and at length recur several times during the course of autumn, winter, and spring; and as, when the fits are frequent, the paroxysms become also longer, so in the advanced state of the disease, the patient is hardly ever tolerably free from it, except perhaps for two or three months in the summer.

The progress of the disease is also marked by the parts which it affects. At first, it commonly affects one foot only; afterwards every paroxysm affects both feet, the one after the other; and as the disease proceeds, it not only affects both feet at once, but, after having ceased in the foot which was secondly attacked, returns again into the first, and perhaps a second time also into the other. Its changes of place are not only from one foot to another, but from the feet into other joints, especially those of the upper and lower extremities; so that there is hardly a joint of the body which, on one occasion or other, is not affected. It sometimes affects two different joints at the very same time; but

more commonly it is at any one time severe in a single joint only, and passes in succession from one joint to another; so that the patient's affliction is often protracted for a great length of time.

When the disease has often returned, and the paroxysms have become very frequent, the pains are commonly less violent than they were at first; but the patient is more affected with sickness, and the other symptoms of the atonic gout, which shall be hereafter mentioned.

After the first paroxysm of the disease, the joints which have been affected are entirely restored to their former suppleness and strength; but after the disease has recurred very often, the joints affected do neither so suddenly nor entirely recover their former state, but continue weak and stiff; and these effects at length proceed to such a degree, that the joints lose their motion entirely.

In many persons, but not in all, after the disease has frequently recurred, concretions of a chalky nature are formed upon the outside of the joint, and for the most part immediately under the skin. The matter seems to be deposited at first in a fluid form, afterwards becoming dry and firm. In their firm state, these concretions are a hard earthy substance, very entirely soluble in acids. After they have been formed, they contribute, with other circumstances, to destroy the motion of the joint.

In most persons who have laboured under the gout for many years, a nephritic affection comes on, and discovers itself by all the symptoms which usually attend calculous concretions in the kidneys, and which we shall have occasion to describe in another place. All that is necessary to be observed here is, that the nephritic affection alternates with paroxysms of the gout; and that the two affections, the nephritic and the gouty, are hardly ever present at the same time. This also may be observed, that children of gouty or nephritic parents commonly inherit one or other of these diseases; but, whether the principal disease of the parent may have been either gout or nephritis alone, some of the children have the one and some the other. In some of them, the nephritic affection occurs alone, without any gout supervening; and this happens to be frequently the case with the female children of gouty parents.

In the whole of the history already given, we have described the most common form of the disease, and which therefore, however diversified in the progress of it, may be still called the regular state of the gout.—Upon some occasions, however, the disease assumes different appearances: but as we suppose the disease to depend always on a certain diathesis, or disposition of the system; to every appearance which we can perceive to depend upon that same disposition, we still consider as a symptom and case of the gout. The principal circumstance, in what we term the *regular gout*, is the inflammatory affection of the joints; and whatever symptoms

we can perceive to be connected with, or to depend upon, the disposition which produces that inflammatory affection, but without its taking place, or being present at the same time, we name the *irregular gout*.

Of such irregular gout there are three different states, which may be named the *atonic*, the *retrocedent*, and the *misplaced* gout.

1. The first is, when the gouty diathesis prevails in the system; but, from certain causes, does not produce the inflammatory affection of the joints. In this case, the morbid symptoms which appear are chiefly affections of the stomach, such as loss of appetite, indigestion, and its various attendants of sickness, nausea, vomiting, flatulency, acid eructations, and pains in the region of the stomach. These symptoms are frequently accompanied with pains and cramps in several parts of the trunk and the upper extremities of the body, which are relieved by the discharge of wind from the stomach. Together with these affections of the stomach, there commonly occurs a costiveness; but sometimes a looseness, with colic pains. These affections of the alimentary canal are often attended with all the symptoms of hypochondriasis, such as dejection of mind, a constant and anxious attention to the slightest feelings, an imaginary aggravation of these, and an apprehension of danger from them.

In the same atonic gout, the viscera of the thorax also are sometimes affected, and palpitations, faintings, and asthma, occur.

In the head also occur head-achs, giddiness, apoplectic and paralytic affections.

When the several symptoms now mentioned occur in habits having the marks of a gouty disposition, this may be suspected to have laid the foundation of them; and especially when either in such habits, a manifest tendency to the inflammatory affection has formerly appeared, or when the symptoms mentioned are mixed with and are relieved by some degree of the inflammatory gout. In such cases there can be no doubt of considering the whole as a state of the gout.

2. Another state of the disease we name the *retrocedent* gout. This occurs when an inflammatory state of the joints has, in the usual manner, come on, but without arising to the ordinary degree of pain and inflammation; or at least without these continuing for the usual time, or without their receding gradually in the usual manner; these affections of the joints suddenly and entirely cease, while some internal part becomes affected. The internal part most commonly attacked is the stomach; which then is affected with anxiety, sickness, vomiting, or violent pain; but sometimes the internal part is the heart, which gives occasion to a syncope; sometimes it is the lungs, which are affected with asthma; and sometimes it is the head, giving occasion to apoplexy or palsy. In all these cases there can be no doubt that the symptoms are all

a part of the same disease, however different the affection may seem to be in the parts which it attacks.

3. The third state of the irregular gout, which we name the *misplaced*, is when the gouty diathesis, instead of producing the inflammatory affection of the joints, produces an inflammatory affection of some internal part, and which appears from the same symptoms that attend the inflammations of those parts arising from other causes.

Whether the gouty diathesis does ever produce such inflammation of the internal parts without having first produced it in the joints, or whether the inflammation of the internal part be always a translation from the joints previously affected, we dare not determine; but even supposing the latter to be always the case, we think the difference of the affection of the internal part must still distinguish the *misplaced*, from what we have named the *retrocedent gout*.

With regard to the misplaced gout, Dr. Cullen, whom we here follow, tells us, that he never met with any cases of it in his practice, nor does he find any distinctly marked by practical writers, except that of a pneumonic inflammation.

There are two cases of a translated gout; the one of which is an affection of the neck of the bladder, producing pain, strangury, and a *catarrhus vesicæ*: the other is an affection of the rectum, sometimes indicated by pain alone in that part, and sometimes by hæmorrhoidal symptoms. In gouty persons such affections have been known to alternate with inflammatory affections of the joints; but whether these belong to the retrocedent or to the misplaced gout, our author pretends not to determine.

It is commonly supposed, that there are some cases of rheumatism which are scarcely to be distinguished from the gout: but these, Dr. Cullen thinks, are but few; and that the two diseases may be, for the most part, distinguished with great certainty, by observing the predisposition, the antecedent circumstances, the parts affected, the recurrences of the disease, and its connection with the system; which circumstances, for the most part, appear very differently in the two diseases.

2. *Causæ, &c.*] The gout is generally an hereditary disease: but some persons without any hereditary disposition seem to acquire it; and in some an hereditary disposition may be counteracted from various causes. It attacks the male sex especially; but it sometimes, though more rarely, attacks also the female. The females liable to it are those of the more robust and full habits; and it very often happens to those before the menstrual evacuation hath ceased. Dr. Cullen hath also found it occurring in several females whose menstrual evacuations were more abundant than usual.

The gout seldom attacks eunuchs; and when it does, seems to

fall on those who happen to be of a robust habit, to lead an indolent life, and to live very full. It attacks especially men of robust and large bodies, who have large heads, are of full and corpulent habits, and whose skins are covered with a thicker *rete muccum*, which gives a coarser surface. To speak in the style of the ancient physicians, the gout will seldom be found to attack those of a sanguine, or such as are of a purely melancholic temperament; but very readily those of a *choleric-sanguine* temperament. It is, however, very difficult to treat this matter with precision. The gout seldom attacks persons employed in constant bodily labour, or those who live much upon vegetable aliment. It does not commonly attack men till after the age of thirty-five; and generally not till a still later period. There are indeed instances of the gout appearing more early; but these are few in comparison of the others. When the disease does appear early in life, it seems to be in those who have the hereditary disposition very strong, and to whom the remote causes hereafter mentioned have been applied in a very considerable degree.

As the gout is an hereditary disease, and affects men particularly of a certain habit, its remote causes may be considered as predisponent and occasional. The predisponent cause, as far as expressed by external appearances, has been already marked; and physicians have been very confident in assigning the occasional causes: but in a disease depending so much upon a predisposition, the assigning occasional causes must be uncertain; as in the predisposed the occasional causes may not always appear, and in persons not predisposed they may appear without effect; and this uncertainty must particularly affect the case of the gout.

The occasional causes of the disease seem to be of two kinds. First, those which induce a plethoric state of the body. Secondly, those which in plethoric habits induce a state of debility. Of the first kind are a sedentary, indolent manner of life, and a full diet of animal food. Of the second kind of occasional causes which induce debility are excess in venery; intemperance in the use of intoxicating liquors; indigestion, produced either by the quantity or the quality of the aliments; much application to study or business, night-watching, excessive evacuations; the ceasing of usual labour; a sudden change from a very full, to a very spare diet; the large use of acids and acescents; and lastly, cold applied to the lower extremities. The former seem to act by increasing the predisposition; the latter are commonly the exciting causes, both of the first attacks, and of the repetitions of the disease.

With respect to the proximate cause of the gout, it has generally been thought that it depends on a certain morbid matter always present in the body; and that this matter, by certain causes, thrown upon the joints or other parts, produces the several phenomena of the disease.

This doctrine, however ancient and generally received, appeared to Dr. Cullen to be very doubtful. For,

First, There is no direct evidence of any morbid matter being present in persons disposed to the gout. There are no experiments or observations which show that the blood or other humours of gouty persons are in any respect different from those of others. Previous to attacks of the gout, there appear no marks of any morbid state of the fluids; for the disease generally attacks those persons who have enjoyed the most perfect health, and appear to be in that state when the disease comes on. At a certain period of the disease, a peculiar matter indeed appears in gouty persons; but this, which does not appear in every instance, and which appears only after the disease has subsisted for a long time, seems manifestly to be the effect, not the cause, of the disease. Further, though there be certain acrids which, taken into the body, seem to excite the gout, it is probable that these acrids operate otherwise in exciting the disease, than by affording the material cause of it. In general, therefore, Dr. Cullen thinks, there is no proof of any morbid matter being the cause of the gout.

Secondly, The suppositions concerning the particular nature of the matter producing the gout, have been so various, and so contradictory, as to allow us to conclude, that there is truly no proof of the existence of any of them. With respect to many of these suppositions, they are so inconsistent with chemical philosophy, and with the laws of the animal economy, that they must be entirely rejected.

Thirdly, The supposition of a morbid matter as the cause, is not consistent with the phenomena of the disease, particularly with its frequent and sudden translations from one part to another.

Fourthly, The supposition is further rendered improbable by this, that, if a morbid matter did exist, its operation should be similar in the several parts which it attacks: whereas it seems to be very different, being stimulant, and exciting inflammation, in the joints; but sedative and destroying the tone of the stomach: which, upon the supposition of the same particular matter acting in both cases, is not to be explained by any difference in the part affected.

Fifthly, Some facts alleged in proof of a morbid matter are not sufficiently confirmed; such as those which would prove the disease to be contagious. There is, however, no proper evidence of this, the facts given being not only few, but exceptionable, and the negative observations innumerable.

Sixthly, Some arguments brought in favour of a morbid matter are founded upon a mistaken explanation. The disease has been supposed to depend upon a morbid matter, because it is hereditary. But the inference is not just: for most hereditary dis-

eases do not depend upon any morbid matter, but upon a particular conformation of the structure of the body transmitted from the parent to the offspring; and this last appears to be particularly the case in the gout. It may be also observed, that the hereditary diseases depending upon a morbid matter, appear always much more early in life than the gout commonly does.

Seventhly, The supposition of a morbid matter being the cause of the gout, has been hitherto useless, as it has not suggested any successful method of cure. Particular theories of gout have often corrupted the practice, and have frequently led from those views which might have been useful, and from that practice which experience had approved. Further, though the supposition of a morbid matter has been generally received, it has been as generally neglected in practice. When the gout has affected the stomach, nobody thinks of correcting the matter supposed to be present there, but merely of restoring the tone of the moving fibres.

Eighthly, The supposition of a morbid matter is quite superfluous; for it explains nothing, without supposing that matter to produce a change in the state of the moving powers; and a change in the state of the moving powers, produced by other causes, explains every circumstance without the supposition of a morbid matter; and it may be observed, that many of the causes exciting the gout, do not operate upon the state of the fluids, but directly and solely upon that of the moving powers.

Lastly, Dr. Cullen contends that the supposition of a morbid matter is superfluous; because, without that, the disease can be explained, he thinks, in a manner more consistent with its phenomena, with the laws of the animal economy, and with the method of cure which experience has approved. We now proceed to give this explanation; but, before entering upon it, we must premise some general observations which Dr. Cullen states.

The first observation is, that the gout is a disease of the whole system, or depends upon a certain general conformation and state of the body, which manifestly appears from the facts above mentioned. But the general state of the system depends chiefly upon the state of its primary moving powers; and therefore the gout may be supposed to be an affection of these chiefly.

The second observation is, that the gout is manifestly an affection of the nervous system; in which the primary moving powers of the whole system are lodged. The occasional or exciting causes are almost all such as act directly upon the nerves and nervous system; and the greater part of the symptoms of the atonic or retrocedent gout are manifestly affections of the same system. This leads us to seek for an explanation of the whole of the disease, in the laws of the nervous system, and particularly in the changes which may happen in the balance of its several parts.

The third observation is, that the stomach, which has so universal a consent with the rest of the system, is the internal part that is the most frequently, and often very considerably, affected by the gout. The paroxysms of the disease are commonly preceded by an affection of the stomach; many of the exciting causes act first upon the stomach, and the symptoms of the atonic and retrocedent gout are most commonly and chiefly affections of the same organ. This observation leads us to remark, that there is a balance subsisting between the state of the internal and that of the external parts; and, in particular, that the state of the stomach is connected with that of the external parts, so that the state of the tone in the one may be communicated to the other.

These observations being premised, Dr. Cullen offers the following pathology of the gout.

In some persons there is a certain vigorous and plethoric state of the system, which at a certain period of life is liable to a loss of tone in the extremities. This is in some measure communicated to the whole system, but appears more especially in the functions of the stomach. When this loss of tone occurs while the energy of the brain still retains its vigour, the *vis medicatrix naturæ* is excited to restore the tone of the parts; and accomplishes it, by exciting an inflammatory affection in some part of the extremities. When this has subsisted for some days, the tone of the extremities and of the whole system is restored, and the patient returns to his ordinary state of health.

This is the course of things in the ordinary form of the disease, which we name the *regular gout*; but there are circumstances of the body, in which this course is interrupted or varied. Thus, when the atony has taken place, if the reaction do not succeed, the atony continues in the stomach, or perhaps in other internal parts; and produces that state which Dr. Cullen, for reasons now obvious, named the *atonic gout*.

A second case of variation in the course of the gout is, when, to the atony, the reaction and inflammation have to a certain degree succeeded, but, from causes either internal or external, the tone of the extremities and perhaps of the whole system is weakened; so that the inflammatory state, before it had either proceeded to the degree, or continued for the time, requisite for restoring the tone of the system, suddenly and entirely ceases: whence the stomach, and other internal parts, relapse into the state of atony; and perhaps have that increased by the atony communicated from the extremities: all which appears in what has been termed the *retrocedent state of the gout*.

A third case of variation from the ordinary course of the gout, is, when, to the atony usually preceding, an inflammatory reaction fully succeeds, but has its usual determination to the joints by some circumstances prevented; and is therefore directed to

some internal part, where it produces an inflammatory affection, and that state of things which we have named the *misplaced gout*.

Though this theory of Dr. Cullen's be supported with much ingenuity, yet we may confidently venture to assert, that, on this subject, he has been less successful in establishing his own opinion, than in combating those of others; and this theory, as well as others formerly proposed, is liable to numerous and unsurmountable objections. According to the hypothesis, a vigorous and plethoric habit should in every case exist prior to the appearance of gout; which is by no means consistent with fact: nor is it true that a vigorous and plethoric habit is liable at a certain age to a loss of tone in the extremities; which is another necessary condition in the hypothesis. Loss of tone often occurs in the extremities without exerting any peculiar influence on the stomach; and why a loss of tone in the stomach should excite the *vis medicatrix naturæ*, to restore it by exciting an inflammatory affection in some part of the extremities, is very inconceivable. Were the hypothesis true, every dyspeptic patient should infallibly be affected with the gout; which, however, is by no means the case. In short, every step in the theory is liable to unsurmountable objections; and it by no means, any more than former hypotheses, explains the phenomena of the disease, particularly what Dr. Cullen has himself so accurately pointed out, the connection of gouty with calculous complaints.

A very ingenious work has lately been published by an anonymous author, entitled, "a Treatise on Gravel and upon Gout;" in which the sources of each are investigated, and effectual means of preventing or removing these diseases recommended. In this treatise an attempt is made to prove, that both diseases depend upon a peculiar concreting acid, the acid of calculi, or the *lithic acid*, as it has been styled by some. He supposes this acid, constantly present to a certain degree in the circulating fluids, to be precipitated by the introduction of other acids; and in this manner he explains the influence of acid wines and other liquors, as claret, cyder, &c. in inducing gout; for he considers the circumstance chiefly constituting the disease as being an inflammation in parts of which the functions have been interrupted by the redundant acid precipitated. Although this theory be supported with much ingenuity, yet it is also liable to many objections. The sudden attack of the affection; its sudden transition from one part of the body to another; the instant relief of one part when another comes to be affected; and the various anomalous forms which the disease puts on, having an exact resemblance to different affections; are altogether irreconcilable to the idea of its depending on any fixed obstruction at a particular part arising from concreting acid. Nor does the plan of prevention and cure which he proposes, and which consists chiefly in abstinence from

acid and in the destruction of acid, by any means correspond in every particular to the best established facts respecting the treatment of gout; to which we next proceed.

3. *Prevention and treatment.*] In entering upon this, we must observe, in the first place, that a cure has been commonly thought impossible: and we acknowledge it to be very probable, that the gout, as a disease of the whole habit, and very often depending upon original conformation, cannot be cured by medicines, the effects of which are always very transitory, and seldom extend to the producing any considerable change of the whole habit.

It would perhaps have been happy for gouty persons if this opinion had been implicitly received by them; as it would have prevented their being so often the dupes of self-interested pretenders, who have either amused them with inert medicines, or have rashly employed those of the most pernicious tendency. Dr. Cullen, who has treated of the cure of the disease with great judgment, as he has done the theory with much ingenuity, is much disposed to believe the impossibility of a cure of the gout by medicines; and more certainly still inclined to think, that, whatever may be the possible power of medicines, yet no medicine for curing the gout has hitherto been found. Although almost every age has presented a new remedy, all hitherto offered have, very soon after, been either neglected as useless, or condemned as pernicious.

But, though unwilling to admit the power of medicines, yet he contends, that a great deal can be done towards the cure of the gout by a regimen: and he is firmly persuaded, that any man who, early in life, will enter upon the constant practice of bodily labour, and of abstinence from animal-food, will be preserved entirely from the disease.

Whether there be any other means of radically curing the gout, the doctor is not ready to determine. There are histories of cases of the gout, in which it is said, that by great emotions of the mind, by wounds, and by other accidents, the symptoms have been suddenly relieved, and never again returned; but how far these accidental cures might be imitated by art, or would succeed in other cases, is at least extremely uncertain.

The practices proper and necessary in the treatment of the gout, are to be considered under two heads; *first*, As they are to be employed in the intervals of paroxysms; or, *secondly*, As during the time of them. In the intervals of paroxysms, the indications are, to prevent altogether the return of paroxysms; or at least to render them less frequent, and more moderate. During the time of paroxysms, the indications are, to moderate the violence and shorten the duration of them as much as can be done with safety.

It has been already observed, that the gout may be entirely prevented by constant bodily exercise, and by a low diet; and Dr. Cullen is of opinion, that this prevention may take place even in persons who have an hereditary disposition to the disease. Even when

the disposition has discovered itself by several paroxysms of inflammatory gout, he is persuaded that labour and abstinence will absolutely prevent any returns of it for the rest of life. These, therefore, are the means of answering the first indication to be pursued in the intervals of paroxysms.

Exercise in persons disposed to the gout, in Dr. Cullen's opinion, has effect by answering two purposes: one of these is the strengthening of the tone of the extreme vessels; and the other, the guarding against a plethoric state. For the former, if exercise be employed early in life, and before intemperance has weakened the body, a very moderate degree of it will answer the purpose; and, for the latter, if abstinence be at the same time observed, little exercise will be necessary.

With respect to exercise, this in general is to be observed, that it should never be violent; for if violent, it cannot be long continued, and must always endanger the bringing on an atony in proportion to the violence of the preceding exercise.

It is also to be observed, that the exercise of gestation, though considerable and constant, will not, if it be entirely without bodily exercise, answer the purpose in preventing the gout. For this end, therefore, the exercise must be in some measure that of the body; and must be moderate, but at the same time constant and continued through life.

In every case and circumstance of the gout in which the patient retains the use of his limbs, bodily exercise, in the intervals of paroxysms, will be always useful; and in the beginning of the disease, when the disposition to it is not yet strong, exercise may prevent a paroxysm which otherwise might have come on. In more advanced states of the disease, however, when there is some disposition to a paroxysm, much walking will bring it on; either as it weakens the tone of the lower extremities, or as it excites an inflammatory disposition in them; and thus it seems to be that strains or contusions often bring on a paroxysm of the gout.

Abstinence, the other part of the proper regimen for preventing the gout, is of more difficult application. If an abstinence from animal food be entered upon early in life, while the vigour of the system is yet entire, Dr. Cullen has no doubt of its being both safe and effectual: but if the motive for this diet shall not have occurred till the constitution has been broken by intemperance, or by the decline of life, a low diet may then endanger the bringing on an atonic state.

Further, if a low diet be entered upon only in the decline of life, and be at the same time a very great change from the former manner of living, the withdrawing of an accustomed stimulus of the system may readily throw this into an atonic state.

The safety of an abstemious course may be greater or less according to the management of it. It is animal food which especially disposes to the plethoric and inflammatory state, and that

food is to be therefore especially avoided ; but, on the other hand, vegetable aliment, of the lowest quality, is in danger of weakening the system too much by not affording sufficient nourishment, and more particularly of weakening the tone of the stomach by its acescency. It is therefore a diet of a middle nature that is to be chosen ; and milk is precisely of this kind, as containing both animal and vegetable matter.

As approaching to the nature of milk, and as being a vegetable matter containing the greatest portion of nourishment, the farinaceous seeds are next to be chosen, and are the food most proper to be joined with milk.

With respect to drink, fermented liquors are useful only when they are joined with animal food, and that by their acescency ; and their stimulus is only necessary from custom. When, therefore, animal food is to be avoided, fermented liquors are unnecessary ; and by increasing the acescency of vegetables, these liquors may be hurtful. The stimulus of fermented or spirituous liquors is not necessary to the young and vigorous, and when much employed impairs the tone of the system. These liquors, therefore, are to be avoided, except so far as custom and the declining state of the system may have rendered them necessary. For preventing or moderating the regular gout, water is the only proper drink.

With respect to an abstemious course, it has been supposed, that an abstinence from animal food and fermented liquors, or the living upon milk and farinacea alone for the space of one year, might be sufficient for a radical cure of the gout : and it is possible that, at a certain period of life, in certain circumstances of the constitution, such a measure might answer the purpose. But this is very doubtful ; and it is more probable, that the abstinence must, in a great measure, be continued, and the milk diet be persisted in, for the remainder of life. It is well known, that several persons who had entered on an abstemious course, and had been thereby delivered from the gout, have, however, upon returning to their former manner of full living, had the disease return upon them with as much violence as before, or in a more irregular and more dangerous form.

It has been alleged, that, for preventing the return of the gout, blood-letting by scarifications of the feet, frequently repeated, and at stated times, may be practised with advantage ; but of this Dr. Cullen tells us he has had no experience : and the benefit of the practice is not, as far as we know, confirmed by the observation of any other practitioner.

Exercise and abstinence are the means of avoiding the plethoric state which gives the disposition to the gout ; and are therefore the means proposed for preventing the paroxysms, or at least for rendering them less frequent and more moderate. But many circumstances prevent the steadiness necessary in pursuing these measures ;

and therefore, in such cases, unless great care be taken to avoid the exciting causes, the disease may frequently return; and, in many cases, the preventing of paroxysms is chiefly to be obtained by avoiding those exciting causes already enumerated.

A due attention in avoiding these different causes will certainly prevent fits of the gout; and the taking care that the exciting causes be never applied in a great degree, will certainly render fits more moderate when they do come on. But, upon the whole, it will appear, that a strict attention to the general conduct of life, is in this matter necessary; and therefore, when the predisposition has taken place, it will be extremely difficult to avoid the disease.

Dr. Cullen is firmly persuaded, that, by obviating the predisposition, and by avoiding the exciting causes, the gout may be entirely prevented; but, as the measures necessary for this purpose will, in most cases, be pursued with difficulty, and even with reluctance, men have been very desirous to find a medicine which might answer the purpose without any restraint on their manner of living. To gratify this desire, physicians have proposed, and, to take advantage of it, empirics have feigned, many remedies. Of what nature several of these remedies have been, it is difficult to say: but of those which are unknown, we conclude, from their having been only of temporary fame, and from their having soon fallen into neglect, that they have been either inert or pernicious, and therefore shall make no enquiry after them; and shall now remark only upon one or two known remedies for the gout which have been in vogue.

One of these is what has been named in England the *Portland powder*. This is not a new medicine, but is mentioned by Galen, and, with some little variation in its composition, has been mentioned by the writers of almost every age since that time. It appears to have been at times in fashion, and to have again fallen into neglect; and Dr. Cullen thinks that this last has been owing to its having been found to be, in many instances, pernicious. An attempt to revive the use of it having been lately made in London by a Mr. Whitehead, who, notwithstanding the palpable evidence of a *nosstrum* and *handbill*, lays some claim to reputation as a *regular* practitioner of medicine, we cannot withhold from our readers some very excellent remarks on this attempt published by Dr. Fothergill, of Bath, in the Medical and Physical Journal.

After stating that a printed paper had been put into his hands, subscribed D. Whitehead, recommending "a revival of the old remedy for the gout, known by the name of the *Portland powder*," which is pretended to have undergone some improvement, Dr. Fothergill proceeds thus:

"As the effects of this preparation have long been recognized by professional persons as injurious and mischievous, and as the authorities cited in the paper which recommends it, are much misrepresented and perverted, I wish to lay before the public

what I apprehend to be the true state of the case, and to caution mankind against the trial of a remedy at once so deceitful and so dangerous. From what is said in the paper above alluded to, we should be led to believe that this remedy was purchased and dispersed by the *present* Duke of Portland; whereas, it was by his father, many years ago. The present nobleman owes his amendment, and indeed his recovery from this painful complaint, to a meritorious and steady adherence to an abstemious and regular course of diet, which consists nearly of vegetable substances; the mixture of animal food being very small, and that of the mildest kind: to this is joined a total abstinence from all fermented liquors; and it is to this judicious management, and not to any medicine, either regularly prescribed or empirically recommended, that he ascribes his freedom from this hereditary malady. The powder which the late duke took himself, and of which he directed copies of the composition, and the manner of its preparation, to be given gratuitously to all who desired it, is as follows:

Receipt for the PORTLAND POWDER.

“ Take Aristolochia rotunda (or birthwort), gentian, root; Germander, ground pine, centaury, tops and leaves.

“ Of all these, well dried, powdered and sifted as fine as you can, mix equal weight well together, and take one drachm of this mixed powder every morning fasting, in a cup of wine and water, broth, tea, or any other vehicle you like best; keep fasting an hour and half after it. Continue this for three months without interruption; then diminish the dose to three-fourths of a drachm for three months longer; then to half a drachm for six months more, taking it regularly every morning if possible. After the first year, it will be sufficient to take half a drachm every other day. As this medicine operates insensibly, it will perhaps take two years before you receive any great benefit, so you must not be discouraged, though you do not perceive at first any great amendment; it works slow, but sure; it doth not confine the patient to any particular diet, so one lives soberly, and abstains from those meats and liquors that have always been accounted pernicious in the gout, as Champagne, drams, high fauces; &c.

“ N.B. In the rheumatism that is only accidental, and not habitual, a few of the drachm doses may do; but if habitual, or of long duration, then you must take it as for the gout:—the remedy requires patience, as it operates but slow in both distempers.”

“ The ingenious and learned Dr. John Clephane has given an excellent account of this very ancient preparation, in the first volume of the Medical Observations and Enquiries. It is

mentioned, he observes, with very little variation from the above receipt, by Galen in the second century; by Cælius Aurelianus (from Soranus), who lived about the same time; by Actius Alexander Trallianus in the fifth century; by Paulus Ægineta in the seventh century; by Myrepsus in the twelfth; by Franciscus de Pedemontio, A.D. 1400; by the Prince of Miranda, about 1480; by Tournetort in later times; and at a period still later, it was transferred into the Paris Pharmacopœia, under the title of Pulvis Arthriticus Amarus.

“ This powder was given in the dose of about a drachm, daily, for a year; as many of those remedies called antidoti were, and these directions are nearly copied in those given for the use of the Portland powder, save that the latter is directed to be persisted in for a longer time.

“ But though it cannot be denied that the ancient writers recommended, in some cases, these bitter preparations as remedies for the gout, yet they advised them with considerable reserve, and an apprehension of their danger.

“ Soranus, who advised them, cautions against their being long continued; as, he says, they brought on some persons acute complaints; on others, apoplexy; on others, pleurisy and peripneumony; and in some cases, difficulty of breathing, or dyspnoea.

“ All of the writers on the subject, caution against the indiscriminate use of it in all cases and habits, as they assure us that they are extremely hurtful in hot and bilious habits, and proper only in cold phlegmatic constitutions. They also judged them to be very dangerous in cases of long standing, and advise no trial of them to be made where the complaint has existed *five*, or at most *seven* years.

“ Such is the abstract of the accounts given of this remedy by the writers of antiquity. Let us now turn to the modern accounts, and particularly to that of the celebrated Dr. Cullen, who is vouched as evidence of the fact by Mr. Whitehead; wherein it will appear, with what impropriety, and under what misrepresentation, this admirable physician has been introduced as encouraging a practice he always reprobated in his conversation, as I can testify, and in his writings, which are open to the perusal of every one.

“ ‘ In every instance,’ says Dr. Cullen, in his Practice of Physic, ‘ which I have known of its exhibition for the length of time prescribed, the persons who had taken it were, indeed, afterwards free from any inflammatory affection of the joints; but they were afterwards affected with many symptoms of the atonic gout, and *all*, soon after finishing their course of the medicine, have been attacked with apoplexy, asthma, or dropsy, which proved fatal.’

“ In a later publication of the same eminent writer, he observes, that ‘ the effects of this powder in modern times, have been very much on the same footing with the ancient. It is possible,’ says he, ‘ that several persons may have taken the Portland powder, and other bitters, with seeming great advantage; but I have not had opportunity to know the sequel of the whole of such persons’ lives, so as to say positively how far, in any case, the cure continued steady for a life of some years after, or what accidents happened to their health. .

“ ‘ But I have had occasion to know, or to be exactly informed, of the fate of nine or ten persons who had taken this medicine for the time prescribed, which is two years. These persons had been liable for some years before to have a fit of regular or very painful inflammatory gout, once at least, and frequently twice, in the course of a year; but after they had taken the medicine for some time, they were quite free from any fit of inflammatory gout, and particularly when they had completed the course prescribed, had never a regular fit, or any inflammation of the extremities, for the rest of their life.

“ ‘ In no instance, however, that I have known, was the health of these persons tolerably entire. Soon after finishing the course of their medicine, they became valetudinary in different shapes, and particularly were much afflicted with dyspeptic and what are called nervous complaints, with lowness of spirits. *In every one of them*, before a year had passed after finishing the course of the powders, some hydropic symptoms appeared, which gradually increasing in the form of an ascites or hydrothorax, especially the latter, joined with anasarca, in less than two or at most three years proved fatal.

“ ‘ These accidents happening to persons of some rank, became very generally known in this country, and has prevented all such experiments since.’ Such are the words of Dr. Cullen; and the reader will, I am certain, join with me in censuring the disingenuous perversion of them in the printed paper alluded to*. Had the whole of the passages I have cited been inserted into Mr. Whitehead’s recommendation of the remedy, who could have imagined Dr. Cullen could be introduced as bearing testimony in favour of its use? But the real opinion of Dr. Cullen is suppressed, and only so much of the effects of the powder is inserted on his authority, as may serve the purpose of persuading those

* “ This celebrated remedy, since its introduction into England, is acknowledged by the most eminent of the faculty to be capable of removing the paroxysms of the gout; and we may freely conclude the testimony of the celebrated Dr. Cullen, of Edinburgh, undeniable evidence of the fact.”

Mr. Whitehead’s Advertisement, or Hand-bill, Page 1.

who have not had an opportunity of knowing his real sentiments, In justice to him, and to mankind, I now lay them before the public; and I am confident the candid and benevolent part of the world will think me fully justified in publishing this caution in the use of a remedy of this character. But its ill effects were not known to our own countrymen only; Werlhoff, a German practitioner of eminence, and first physician to his late majesty for the electorate of Hanover, agrees in condemning these bitter remedies for the gout. After saying that the return of the painful paroxysms is thereby prevented, he adds, 'that by the excessive use of these bitter remedies, he has known the digestive power of the stomach to be so weakened, as to produce a loss of appetite, and proper concoction of the food, which has accelerated the death, instead of restoring the health, of those who had used them, who thus paid the severe penalty attendant on the trial of these unlucky and mischievous remedies*.'

"Murray, the Gottingen professor, gives in his *Apparatus Medicamentum* a similar account; and adds, 'that the powder produced, in many instances, apoplexy, palsy, and acute disorders, together with difficulty of breathing, a dry cough, and tubercles of the lungs, which proved suddenly mortal†.'

"The reputation of this medicine having declined before I had any opportunity of observing its effects at the time of taking, and its mischievous consequences having prevented its having many living vouchers of its success, I cannot say any thing of it from my own experience. I remember, indeed, one person far advanced in years, who was I believe a Proctor in the Ecclesiastical Court at York, who was pointed out to me as a remarkable instance of one who had survived the effects of this remedy. He appeared in good health, and had not I believe experienced any ill effects from the powder. But this is, as far as my information goes, a solitary instance, and no more to be depended on as an encouragement to the trial of the remedy than an extraordinary case of excess in spirituous liquors, which still did not appear to abridge life, or injure health, would be to encourage the indulging in that odious and poisonous beverage."

* *Sed ex nimio horum amarificantium usu, fermentum stomachi adeo debilitatum esse memini, ut nonnulli appetitum amiserint, cibos non concoxerint, mortem hinc potius, quam sanitatem accelerarint; mal que ex insauti remedii savas dederint poenas.* Werlhoff, *Caut. Medicæ*, Page 346.

† *Ex pulvere arthritico multi apoplexiam, paralyin, vel morbos acutos, senes præcipue, contraxerunt. Et in homine quodam, arthritis quidem inde sedata, sed respiratio difficilis, tussis sicca, morisque subitanea successit, tuberculis pulmonum post mortem conspicuis.* Murray, Vol. I. page 355.

Another remedy which has had the appearance of preventing the gout, is an alkali in various forms; such as the fixed alkali, both mild and caustic, lime-water, soap, and absorbent earths: and of late the *alkaline aerated water* has been more fashionable than any other. When fixed alkali is preferred, the *Aqua kali* of the London Pharmacopœia may be exhibited in the dose of from twenty to forty or sixty drops twice a-day in a cup of water-gruel. Since it became common to exhibit these medicines in nephritic and calculous cases, it has often happened that they were given to those who were at the same time subject to the gout; and it has been observed, that under the use of these medicines, gouty persons have been longer free from the fits of their disease. That, however, the use of these medicines has entirely prevented the returns of gout, Dr. Cullen does not know; because he never pushed the use of them for any long time, being apprehensive that they might produce a hurtful change in the state of the fluids.

As the preventing the gout depends very much on supporting the tone of the stomach, and avoiding indigestion; so costiveness, by occasioning this, is very hurtful to gouty persons. It is therefore necessary for such persons to prevent or remove costiveness, and by a laxative medicine, when needful; but it is at the same time proper, that the medicine employed should be such as may keep the belly regular, without much purging. Magnesia, oleum ricini, or flowers of sulphur, may be employed, as the one or the other may happen to be best suited to particular persons, but aloes or rhubarb are still better. Thus, the end may be answered by (No. 7.), or the following from the Pharmacopœias of Guy's, St. Thomas's, and Bartholomew's hospitals:

(No. 144.) R Vini aloes ℥iv.

Syrupi papaver. alb. ℥ss.

Salis cornu cervi ℥ij.

Misce fiat Mistura. Detur cochleare unum nocte.

(No. 145.) R Saponis ℥j.

Rhabarb. in pulv. trit. gr. v.

Misce syrupo, ut fiat Bolus ter quotidie sumendus.

(No. 146.) R Aloes succot. pulv. ℥ij.

Extracti glycyrrhizæ incis. ℥vj.

Spiritus vini tenuioris.

Aquæ puræ sing. ℥iv.

Digere in calore arenæ per horas xij. subinde agitans; dein seponatur et postquam fœces subsiderint, effundatur liquor purus et filtretur reliquus.

Dosis, a drachmâ ad unciam horâ somni.

Or the following, known by the name of *Boerhaave's Gout Cordial*:

(No. 147.) ℞ Rhabarb. in pulv. trit. ℥j.

Fol. fennæ. ℥ij.

Sem. Cardam.

Sem. Coriand.

Croci

Coccinellæ sing. ℥ij.

Uvæ pafs. ℥iij.

Sp. Vini Gall. lib. j.

} contus. sing. 5j.

Digere et cola. Detur cochl. iv. pro re nata.

Dr. Saunders directs the administration of Oleum Ricini in the following way :

(No. 148.) ℞ Ol. e femin. ricini

Vitell. Ovi recent. sing. ℥ss.

His rite terendo subactis, adde paulatim,

Aq. cinnam. vel

Aq. Menth. pip. ℥iss. ut fiat Haustus quamprimum fumendus.

Or the following preparation of Rhubarb from the same, may be properly employed in gouty cases :

(No. 149.) ℞ Rhabarb. in pulv. trit.

Magnes, ust. utriusq. ℥ij.

Cinnam. cort. contus. 5j.

Aquæ ferventis ℥x.

Magnesia et rhabarbaro prius ritè contritis, in vase idoneo macera, et liquorem cola ; dein adde

Tincturæ cort. aurant. 5j.

Sumantur coch. iij. hora ante prandium quotidie.

These are the several measures to be pursued in the intervals of the paroxysms ; and we are next to mention the measures proper during the time of them.

As during the time of paroxysms the body is in a feverish state, no irritation should then be added to it ; every part, therefore, of the antiphlogistic regimen, except the application of cold, ought to be strictly observed.

Another exception to the general rule may occur when the tone of the stomach is weak, and when the patient has been before much accustomed to the use of strong drink ; for then it may be allowable, and even necessary, to give some animal food and a little wine.

That no irritation is to be added to the system during the paroxysms of gout, except in the cases mentioned, is agreed upon among physicians : but it is a more difficult matter to determine, whether, during the time of paroxysms, any measures may be pursued to moderate the violence of reaction and of inflammation. Dr. Sydenham has given it as his opinion, that the more violent the inflammation and pain, the paroxysm will be the

shorter, as well as the interval between the present and the next paroxysm longer: and, if this opinion be admitted as just, it will forbid the use of any remedies which might moderate the inflammation; which is, to a certain degree, undoubtedly necessary for the health of the body. On the other hand, acute pain presses for relief; and although a certain degree of inflammation may seem absolutely necessary, it is not certain but that a moderate degree of it may answer the purpose; and it is even probable, that in many cases the violence of inflammation may weaken the tone of the parts, and thereby invite a return of paroxysms. It seems to be in this way, that, as the disease advances, the paroxysms become more frequent.

From these last considerations, it seems probable, that, during the time of paroxysms, some measures may be taken to moderate the violence of the inflammation and pain, and particularly, that in first paroxysms, and in the young and vigorous, blood-letting at the arm may be practised with advantage: but this practice cannot be repeated often with safety; because blood-letting not only weakens the tone of the system, but may also contribute to produce plethora. However, bleeding by leeches on the foot, and upon the inflamed part, may be practised and repeated with greater safety; and instances have been known of its having been employed with safety to moderate and shorten paroxysms; but how far it may be carried, we have not had experience enough to determine.

Besides blood-letting and the antiphlogistic regimen, it has been proposed to employ remedies for moderating the inflammatory spasm of the part affected, such as warm bathing and emollient poultices. These have sometimes been employed with advantage and safety; but, at other times, have been found to give occasion to a retrocession of the gout.

Blistering is a very effectual means of relieving and discussing a paroxysm of the gout; but has also frequently had the effect of rendering it retrocedent. The stinging with nettles is analogous to blistering; and probably would be attended with the same danger. The burning with moxa *, or other substance, is

* Moxa is the *Mugwort* of China, a soft lanuginous substance prepared in Japan from a species of *Artemisia* (little differing from our common Mugwort). by beating the dried leaves and rubbing them between the hands till the downy part can be separated.

It is famous in the East for curing the gout, and as a species of actual cautery in other cases, and is used in the following manner: "A little cone of the Moxa is laid upon the part, previously moistened, and set on fire at the top. It burns down with a temperate glowing heat, and produces a dark-coloured spot, the exulceration of which is promoted by applying a little garlic. The ulcer is left to discharge, or is soon healed, according to the intention in using the moxa."

a remedy of the same kind: but though not found hurtful, there is no sufficient evidence of its proving a radical cure.

Camphire, and some aromatic oils, have the power of allaying the pain, and of removing the inflammation from the part affected: but these remedies commonly make the inflammation only shift from one part to another, and therefore with the hazard of its falling upon a part where it may be more dangerous; and they have sometimes rendered the gout retrocedent.

From these reflections it will appear, that some danger must attend every external application to the parts affected during a paroxysm; and that therefore the common practice of committing the person to patience and flannel alone, is established upon the best foundation. Opiates give the most certain relief from pain; but, when given in the beginning of gouty paroxysms, it has by some been thought that they occasion these to return with greater violence. When, however, the paroxysms shall have abated in their violence, but still continue to return, so as to occasion painful and restless nights, opiates may be given with safety and advantage; especially in the case of persons advanced in life, and who have been often affected with the disease. When, after paroxysms have ceased, some swelling and stiffness still remain in the joints, these symptoms are to be discussed by the diligent use of the flesh-brush. Purging immediately after a paroxysm will be always employed with the hazard of bringing it on again.

Thus far of the *regular* gout. We now proceed to consider the management of the disease when it has become *irregular*.

Treatment of the irregular Gout.

There are three species of irregular gout, namely, the *atonic*, the *retrocedent*, and the *misplaced*, as has been already observed.

1. In the *atonic* gout, the cure is to be accomplished by carefully avoiding all debilitating causes; and by employing, at the same time, the means of strengthening the system in general, and the stomach in particular.

For strengthening the system in general, Dr. Cullen recommends frequent exercise on horseback, and moderate walking. Cold-bathing also may answer the purpose; and may be safely employed, if it appear to be powerful in stimulating the system, and be not applied when the extremities are threatened with any pain.

For supporting the tone of the system in general, when threatened with atonic gout, some animal food ought to be employed, and the more acceſcent vegetables ought to be avoided. In the same case, some wine also may be necessary; but it should be in

moderate quantity, and of the least acedent kinds; and if every kind of wine shall be found to increase the acidity of the stomach, ardent spirits and water must be employed.

For strengthening the stomach, bitters and the Peruvian bark may be employed; but care must be taken that they be not constantly employed for any great length of time.

The following will answer the purpose very well:

(No. 150.) ℞ Tinct. cinchonæ comp.

Tinct. gentianæ comp. sing. ℥ij.

Misce Detur coch. j. bis die.

The most effectual medicine for strengthening the stomach is iron, which may be employed under various preparations; but the best appears to be the rust in fine powder, which may be given in large doses. The electuarium cinchonæ cum ferro of Guy's Hospital is in this case very suitable:

(No. 151.) ℞ Cinchonæ in pulv. trit. ℥ij.

Chamæmeli in pulv. trit. ℥iss.

Ferri rubiginis ℥j.

Syrupi simplicis q. s. Misce fiat Electuarium.

Detur drach. ij. bis terve indies:

Or the following:

(No. 152.) ℞ Myrrhæ in pulv. trit. ℥j.

Kali præparati ℥ss.

Ferri vitriolati gr. xij.

Mucilaginis arabici gummi ℥ij.

Decocti glycyrrhizæ ℥viss.

Spiritus pimento ℥j.

Tere myrrham et ferrum vitriolatum cum kali et mucilagine, donec perfecte commisceantur, dein adde reliqua. Detur cochl. ij. ad iv. bis terve indies.

For supporting the tone of the stomach, aromatics may be employed; but should be used with caution, as the frequent and copious use of them have an opposite effect; and they should therefore be given only in compliance with former habits, or for palliating present symptoms. They are indeed most proper joined with the bark.

The mixture (No. 52.), or the following from the Pharmacopœia of Guy's hospital, are very suitable for this purpose:

(No. 153.) ℞ Confect. aromat. ℥ij.

Aquæ menth. piper. ℥viij. M. fiat Mistura.

Or the following from the formulæ of Dr. Nankivel:

(No. 154.) ℞ Raphan. rustic.

Sem. sinap. contus. sing. ℥ij.

Aquæ bullien. ℥ij. Fiat infusio. Detur unc. quatuor ter die.

(No. 155.) R Sinap. in pulv. trit.

Conf. Rosæ sing. ʒj.

Syr. zinziber. q. s. ut fiat Electuarium.

Detur drach. j. vel ij. bis die.

When the stomach happens to be liable to indigestion, gentle vomits may be frequently given, and proper laxatives should be always employed to obviate or to remove costiveness; such as (No. 3. or 19.)

In the atonic gout, or in persons liable to it, to guard against cold is especially necessary; and the most certain means of doing this, is by repairing to a warm climate during the winter season. In northern situations, the wearing of fleecy hosiery is of great consequence, or at least flannel, universally next the skin. In the more violent cases, blistering the lower extremities may be useful; but that remedy should be avoided when any pain threatens the extremities. In persons liable to the atonic gout, issues may be established in the extremities as in some measure a supplement to the disease.

2. A second case of the irregular gout is the *retrocedent*.

When this affects the stomach and intestines, relief is to be instantly attempted by the free use of strong wines, joined with aromatics, and given warm: or, if these shall not prove powerful enough, ardent spirits must be employed, and are to be given in a large dose. In moderate attacks, ardent spirits, impregnated with garlic or with asafœtida, may be employed; or, even without the ardent spirits, a solution of asafœtida, with the volatile alkali, may answer the purpose. Opiates are often an effectual remedy; and may be joined with aromatics, as in the electuarium opiatum; or they may be usefully joined with volatile alkali and camphire. Musk has likewise proved useful in this disease, and may be given in the usual form prescribed by the London College; or in the following by Dr. Saunders:

(No. 156.) R Mosch.

Castor. Russic. utriusq. in pulv. trit. ʒj.

Conf. Cynosbat. ʒj. Fiant Boli numero duo, quorum alter mane, alter vesperi sumatur, ex Misturæ camphoratae uncii duabus.

When the affection of the stomach is accompanied with vomiting, this may be encouraged, by taking draughts of warm wine, at first with water and afterwards without it; having at length recourse, if necessary, to some of the remedies above mentioned, and particularly to opiates.

In like manner if the intestines be affected with diarrhœa, this is to be at first encouraged by taking plentifully of weak broth; and when this shall have been done sufficiently, the tumult is to be quieted by opiates.

When the retrocedent gout shall affect the lungs, and produce

asthma, this is to be cured by opiates, by antispasmodics, and perhaps by blistering on the back or breast.

When the gout, leaving the extremities, shall affect the head, and produce pain, vertigo, apoplexy, or palsy, our resources are very precarious. The most probable means of relief is, blistering the head; and, if the gout shall have receded very entirely from the extremities, blisters may be applied to these also. Together with these blisterings, aromatics, and the volatile alkali, may be thrown into the stomach.

3. The third case of the irregular gout is the *misplaced*; that is, when the inflammatory affection of the gout, instead of falling upon the extremities, falls upon some internal part. In this case, the disease is to be treated by blood-letting, and by such other remedies as would be proper in an idiopathic inflammation of the same parts.

Whether the translation so frequently made from the extremities to the kidneys, is to be considered as an instance of the misplaced gout, seems uncertain: but Dr. Cullen is disposed to think it something different; and therefore is of opinion, that, in the *nephralgia calculosa* produced upon this occasion, the remedies of inflammation are to be employed no farther than they may be otherwise sometimes necessary in that disease, arising from other causes than the gout.

Where the signs of inflammation are inconsiderable, and no particular circumstances seem to forbid its use, the *Bolus ad arthriticos* of Guy's hospital may be had recourse to.

(No. 157.) \mathcal{R} Mellis gr. xxxvj.

Ol. Terebinth. gutt. x. ad xxiv. Misce, et fiat Bolus bis die sumendus.

Or the following directed by Dr. Nankivel:

(No. 158.) \mathcal{R} Sem. dauci sylvest. ~~carrot seed~~

Bacc. Junip. contus. sing. 3ij.

Aquæ bullientis lib. j. Digere et cola. Dosis unc. ij. omni nocte.

To this dissertation on the gout, taken from the works of our late learned professor, we cannot help subjoining a very uncommon case, published by Dr. Samuel Pye in the London Medical Transactions, where the gout would seem to have been occasioned by a morbid matter, and to have been cured by the evacuation of it.

* Mr. Major Rook, surgeon and apothecary in Upper Shadwell, of about forty-five years of age, a sober, temperate man, of a good habit of body, accustomed to no disease but the gout; the returns of the fits whereof had never been more frequent than once in twelve or fourteen months; about the month of June, 1752, was seized with a very severe paroxysm of the gout. As

I had known some extraordinary effects proceeding from a vegetable diet in that distemper, particularly in one gentleman, who, by a total abstinence from all manner of food except cows' milk, and that without bread, had cured himself of this disease; and who, at the time I mentioned the case to my friend, was in the 13th year of his milk diet; I persuaded Mr. Rook to try what vegetables would do for him: he readily complied, and entered upon it immediately, with a resolution, that, if it answered his expectation, he would renounce fish and flesh for ever.

"But, after the most religious abstinence from animal food of every kind for eleven weeks, being visited by a gentle attack in both feet, he returned immediately to his animal food. This paroxysm continued but forty-eight hours; but in March, 1723, was succeeded by a very severe one in both feet.

"The pain in his feet, heels, and ancles, increased with great violence for about ten or twelve days; till at length he was in the most extreme agonies; such as he had never felt before, and such as almost made him mad. In the height of this extremity, the pains (it is his own expression) from the feet, heels, and ancles, flew as quick as lightning directly to the calves of his legs; but remaining there not half a minute, and not in the least abating of their extreme violence (though the feet, heels, and ancles, were left entirely free from pain), from the calves, after a short stay of about half a minute, the pains ascended with the same velocity as before to both the thighs, at the same time leaving the calves of the legs free from pain; from the thighs, in less than the space of one minute, and as quick as before, they arrived at the abdomen; and after giving the patient one more severe twitch in the bowels, they reached the stomach: here the pains and here the fit ended, upon the patient vomiting up about a pint and a half of a green aqueous liquor, but so extremely corrosive, that he compared it to the strongest mineral acid.

"This extraordinary crisis happened at about two in the morning: immediately after this discharge he fell asleep, and slept till seven or eight, and waked perfectly easy in every part, no signs of the distemper remaining but the swelling and tenderness of his feet; both of which went off gradually, so that in two days he was able to walk about his business.

"The next fit seized him in February, 1754, in the common way, but was less violent than the former, and continued for about six weeks; during which time he had three increased paroxysms, or distinct smart fits, which held him about two hours each; in the last of which he had the same critical discharge, by vomiting of the same corrosive matter, preceded by the same uncommon symptoms as in the fit of 1753. But mending every hour, he was able the very next day to walk, and attend his patients,

with more ease than after the first-mentioned fit; for the swelling abated much sooner, and in three days disappeared.

"I have said, that this last fit was attended with three distinct paroxysms, the last of which ended as above: yet to shew the disposition of Nature; in this case, to throw off the offending humour in this her new way, it is remarkable, that in the two first of these increased paroxysms of pain, the patient declared to me that he never had the least ease till he had vomited; but as there was no translocation of the pain before these vomitings, there was none of that corrosive matter to be discharged; nothing but the common contents of the stomach was to be seen. These vomitings, however, procured the patient some ease; but the fit of the gout went on till the third paroxysm was over, which ended as has been related.

"As the crisis in this case is uncommon, I must take notice of a symptom or two, which were no less extraordinary, in both these fits of the gout.

"A most profuse sweat attended the patient every morning during the whole course of the fits; which was so very offensive, and at the same time his breath so uncommonly stinking, that neither the patient himself, nor those who waited on him, were ever sensible of the like.

"His linen was tinged as with saffron; and his urine very high coloured, of almost as deep a red as claret: but, upon the critical vomitings, every one of these symptoms disappeared with the disease.

"On the 9th of December, 1755, he was attacked again in one foot. The symptoms, however, were so very mild, that he took no notice of them to his family till the 12th: from that day the pain was aggravated, and the swelling greatly increased by walking, and riding in a coach. On the 17th it became extremely violent, particularly in the heel; when it instantaneously left the parts affected, and in the same manner, and with equal velocity (as in the two former fits), it flew into the calves of his legs, thighs, and abdomen; and when it had reached the stomach, it caused him to vomit the same kind of corrosive acid as in the two former fits; and though the quantity was no more than a teaspoonful, he became perfectly well in two days.

"The same symptoms of fetid urine, and offensive sweats, attended the patient in this short paroxysm as in those of 1753 and 1754: the sweat continued but two nights, and the urine fetid only forty-eight hours.

"As Mr. Rook had experienced so great and happy effects from the former critical vomitings, he was greatly disappointed upon finding the quantity evacuated so very small; for which reason he immediately attempted to increase it, by drinking three pints of warm water (which was at hand), but in vain; for nei-

ther that, nor the use of his finger, could provoke to an evacuation, which was begun and finished by nature; for though the quantity evacuated was so very small, yet as it was equally corrosive, and produced the same effect, the discharge must be accounted as truly critical as the others were.

“ During the first of these fits, in the year 1752, a hard tumor had appeared on the side of the metatarsus near the middle of the right foot, which continued till after the third critical vomiting; when it was resolved, and totally disappeared, upon the discharge of a viscid matter like the white of an egg, with a few small chalk stones from the end of the middle toe of the same foot. This discharge happened about four or five days before the patient was seized with a regular fit in April, 1755. But it is to be remarked, that this last fit continued three or four weeks, and went off in the common way, without any of the critical discharges of vomiting, urine, or sweat; but left on one hand three, and on the other two, fingers loaded with chalk-stones; with this peculiar symptom, that when the weather was cold those fingers were affected with a most exquisite pain, which was always removed by heat.

“ But not long after this last-mentioned fit, a large quantity of chalk-stones were extracted from the bottom of the left foot, near the ball of the great toe, and that from time to time for about three or four months. On the 19th of January, 1756 (the wound occasioned by the chalk-stones being still open), he was seized with a fever, without any symptom of the gout; the fever went off on the third day, with the same kind of critical sweat and urine as always accompanied the acid vomitings in the fore-mentioned fits. On the fourth day from the attack of the fever, a fit of the gout came on, with the common symptoms, in both feet; which continued with violence for about a week, with frequent retching and vomiting, but without bringing up more than the common contents of the stomach. At this time an uncommon itching in the bottom of the foot and ball of the great toe from whence the chalk stones had been extracted, tormented the patient for five or six hours; upon his gently rubbing the part, he was very sensible of a fluctuation of some matter, which soon appeared to flow at first in small quantities from the open orifice in the ball of the toe: upon pressing the part, about a teacupful of a liquid chalky matter was collected. The next morning the patient made a large opening with an imposthume knife, which produced more than half a pint of a bloody serous matter, full of chalk-stones, which proved as truly critical as the vomitings of the corrosive acid did in the cases above mentioned; for the orifice from whence the chalk-stones first issued was very soon healed, and the gentleman continues in perfect health.”

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